

PROGRAM OF STUDIES

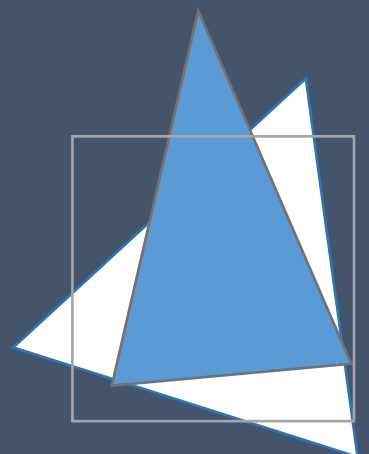
Middle and High School
Academic Year 2018-2019



Loudoun County Public Schools

Empowering all students to make meaningful contributions to the world.

21000 Education Court / Ashburn, VA 20148





Eric Williams, Ed.D.
Superintendent

LOUDOUN COUNTY PUBLIC SCHOOLS

OFFICE OF THE SUPERINTENDENT

21000 Education Court
Ashburn, Virginia 20148
(571) 252-1020

January 2018

Dear Students and Parents:

The Loudoun County Public Schools (LCPS) *Program of Studies* contains important information to help you understand the opportunities available for your middle and/or high school student. LCPS offers a wide variety of academic, elective and programmatic courses that meet the needs of all learners.

Developing a comprehensive academic and career plan is best accomplished through collaboration between students, parents, school counselors, teachers, and principals. A well-developed plan will ensure that graduation requirements are met on time and that academic and personal growth are supported in preparation for post-secondary options such as college, vocational training, military service, or employment.

The Program of Studies is an excellent reference to help your student navigate their journey as a learner in LCPS. Please take time to review the information presented in this booklet as it includes specifics about course descriptions, grades, academic and career planning, Virginia Standards of Learning testing information, graduation requirements as set forth by the Virginia Department of Education, athletic and VHSL participation, diploma requirements, occupational and career clusters, senior class rank and much more.

With best wishes for a successful school year, I am

Very truly yours,

A handwritten signature in black ink, appearing to read "Eric Williams", with a long, sweeping horizontal line extending to the right.

Eric Williams, Ed.D.
Superintendent

Loudoun County School Board

Eric Williams, Ed.D.
Superintendent of Schools

Jeffrey E. Morse, Chairman
Dulles District

Debbie K. Rose
Algonkian District

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Broad Run District

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Ashburn District

Eric J. DeKenipp
Catoctin District

Beth A. Huck
At-Large Member

Jill A. Turgeon
Blue Ridge District

Tom C. Marshall
Leesburg District

Loudoun County Middle Schools

Belmont Ridge Middle School
19045 Upper Belmont Place
Leesburg, VA 20176
Phone: 571.252.2200
Ryan P. Hitchman, Principal

Harper Park Middle School
701 Potomac Station Drive
Leesburg, VA 20176
Phone: 517.252.2820
Elizabeth A. Robinson, Principal

Smart's Mill Middle School
850 North King Street
Leesburg, VA 20176
Phone: 571.252.2030
William Y. Waldman, Principal

Blue Ridge Middle School
551 East A Street
Purcellville, VA 20132
Phone: 540.751.2520
Brion E. Bell, Principal

J. Michael Lunsford Middle School
26020 Ticonderoga Road
Chantilly, VA 20152
Phone: 703.722.2660
Carrie Simms, Principal

Sterling Middle School
201 W. Holly Avenue
Sterling, VA 20164
Phone: 571.434.4520
Agustin Martinez, Principal

Brambleton Middle School
23070 Learning Circle
Ashburn, VA 20148
Phone: 703.957.4450
Renée M. Dawson, Principal

Mercer Middle School
42149 Greenstone Drive
Aldie, VA 20105
Phone: 703.957.4340
Robert J. Phillips, Principal

Stone Hill Middle School
23415 Evergreen Ridge Drive
Ashburn, VA 20148
Phone: 703.957.4420
Kathryn Clark, Principal

Eagle Ridge Middle School
42901 Waxpool Road
Ashburn, VA 20148
Phone: 571.252.2140
Scott F. Phillips, Principal

River Bend Middle School
46240 Algonkian Parkway
Sterling, VA 20165
Phone: 571.434.3220
David E. Shaffer, Principal

Trailside Middle School
20325 Claiborne Parkway
Ashburn, VA 20147
Phone: 571.252.2280
Bridget M. Beichler, Principal

Farmwell Station Middle School
44281 Gloucester Parkway
Ashburn, VA 20147
Phone: 571.252.2320
Sherryl D. Loya, Principal

Seneca Ridge Middle School
98 Seneca Ridge Drive
Sterling, VA 20164
Phone: 571.434.4420
Kathryn Garvey, Principal

Willard Intermediate School
40915 Braddock Road
Aldie, VA 20105
Phone: 571.367.4040
Jeffrey Rounsley, Principal

Harmony Middle School
38174 W. Colonial Highway
Hamilton, VA 20158
Phone: 540.751.2500
Eric L. Stewart, Principal

J.L. Simpson Middle School
490 Evergreen Mill Road, SE
Leesburg, VA 20175
Phone: 571.252.2840
Chad D. Runfola, Principal

Loudoun County High Schools

Briar Woods High School
22525 Belmont Ridge Road
Ashburn, VA 20148
Phone: 703.957.4400
Christopher O'Rourke, Principal
David L. Royhab,
Director of School Counseling

Broad Run High School
21670 Ashburn Road
Ashburn, VA 20147
Phone: 571.252.2300
David A. Spage, Principal
Casey A. Sarafinas,
Director of School Counseling

John Champe High School
41535 Sacred Mountain Street
Aldie, VA 20105
Phone: 703.722.2680
John G. Gabriel, Principal
Christi B. Campbell,
Director of School Counseling

Dominion High School
21326 Augusta Drive
Sterling, VA 20164
Phone: 571.434.4400
Dr. John Brewer, Principal
Jaclyn E. Smith,
Director of School Counseling

Freedom High School
25450 Riding Center Drive
South Riding, VA 20152
Phone: 703.957.4300
Douglas B. Fulton, Principal
Kenneth Christopher,
Director of School Counseling

Heritage High School
520 Evergreen Mill Road
Leesburg, VA 20175
Phone: 571.252.2800
Jeffrey R. Adam, Principal
Suzanne L. Eicholtz,
Director of School Counseling

Loudoun County High School
415 Dry Mill Road, SW
Leesburg, VA 20175
Phone: 571.252.2000
Dr. Michelle L. Luttrell, Principal
Daniel S. Croyle,
Director of School Counseling

Loudoun Valley High School
340 N. Maple Avenue
Purcellville, VA 20132
Phone: 540.751.2400
Susan A. Ross, Principal
Jeannine G. Cummings,
Director of School Counseling

Park View High School
400 W. Laurel Avenue
Sterling, VA 20164
Phone: 571.434.4500
Kirk A. Dolson, Principal
Joanne Nagurny,
Director of School Counseling

Potomac Falls High School
46400 Algonkian Parkway
Potomac Falls, VA 20165
Phone: 571.434.3200
Dr. Brandon G. Wolfe, Principal
Rae Ann Paolozzi,
Director of School Counseling

Riverside High School
19019 Upper Belmont Place
Leesburg, VA 20176
Phone: 703.554.8900
Douglas A. Anderson, Principal
Robert M. Yarborough,
Director of School Counseling

Rock Ridge High School
43460 Loudoun Reserve Drive
Ashburn, VA 20148
Phone: 571.367.4100
John M. Duellman, Principal
Kevin A. Terry,
Director of School Counseling

Stone Bridge High School
43100 Hay Road
Ashburn, VA 20147
Phone: 571.252.2200
Matthew R. Wilburn, Principal
Robert "Tim" Lucas,
Director of School Counseling

Tuscarora High School
801 N. King Street
Leesburg, VA 20176
Phone: 571.252.1900
Pamela Croft, Principal
Jennifer L. Reed,
Director of School Counseling

Woodgrove High School
36811 Alder School Road
Purcellville, VA 20132
Phone: 540.751.2600
William S. Shipp, Principal
Geri M. Fiore,
Director of School Counseling

Loudoun County Educational Centers And Additional High School Options

Academies of Loudoun
42075 Loudoun Academy Drive
Leesburg, VA 20175
Phone: 571.252.1980
Dr. Tinell L. Priddy, Principal
TBD,
Director of School Counseling

Douglass School
407 E. Market Street
Leesburg, VA 20176
Phone: 571.252.2060
Marianne Turner, Principal
Brett Leshner,
Mary Shepherd,
School Counselors
**Grades 6-12*

**Thomas Jefferson High School
For Science and Technology**
6560 Braddock Road
Alexandria, VA 22312
Phone: 703.750.8300
Evan M. Glazer, Principal

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Students New to Loudoun County Public Schools

Parents of students new to Loudoun County Public Schools should visit <https://www.lcps.org/site/Default.aspx?PageID=1012> for registration information, forms, and documentation needed to register their student.

Purpose of the Program of Studies

This educational planning guide is designed to help students and their parents:

- Learn about courses and programs offered in the middle and high schools of Loudoun County Public Schools
- Make informed choices about courses
- Realize that academic performance from kindergarten through high school relates to future goals
- Understand and prepare for Virginia's graduation requirements, and assist students in planning and refining their academic and career plans (ACP) to meet educational and career goals

Students should study this guide and consult with their parents, school counselors, and teachers in planning their individual plans.

General Information

It is the responsibility of each student and parent that requirements for a Standard Diploma or an Advanced Studies Diploma are met. Beginning in seventh grade, school counselors review graduation requirements with students annually, and the school counseling staff at each school is available to assist students and parents. Parents should work closely with their student's school counselor in making the best academic decisions for their student. To determine graduation requirements, students and parents must consider both the desired diploma option and the year the student first enters(ed) ninth grade.

How Can I Prepare?

All high school graduates can expect to work, earn a living, and build a career. To do this successfully requires planning and selecting a career goal that is right for the student. Students need to set personal goals that will give focus on their high school years. These goals should be outlined in an academic and career plan developed with the assistance of a school counselor and the parents. The student's academic and career plan provides a strategy for accomplishing goals. Students should consider the following as they develop their plan and select courses:

- Student's abilities, interests, values, strengths, likes, and dislikes
- Curriculum in the career area of the student's choice, including work-related options
- Cost, transportation, and extracurricular activities
- Possible occupations that relate to the student's skills

Academic and Career Planning

Loudoun County Public Schools is dedicated to developing knowledgeable critical thinkers, communicators, collaborators, creators, and contributors, and academic and career planning is part of that process. School counselors and teachers use *Naviance* to ensure students engage in self-exploration, career exploration, and skill development that will assist in accomplishing their personalized goals. Throughout middle and high school, students will engage in academic and career planning activities to ensure they are college and/or career ready upon graduation. For more information regarding the academic and career planning process, please contact the student's school counselor.

Individualized Education

Provisions are made for individualized education for students with identified disabilities. These include programs for students who are learning disabled, emotionally disabled, intellectually disabled, other health impaired, hearing impaired, speech impaired, visually impaired, or physically impaired. Individualized Education Plans (IEPs) specify individual accommodations.

Career Clusters

Career Clusters help students investigate careers and design their courses of study to advance their career goals. For this reason, the state of Virginia has adopted the nationally accepted structure of career clusters, career pathways, and sample career specialties or occupations

A Career Cluster is a grouping of occupations and broad industries based on commonalities. Within each career cluster there are multiple career pathways that represent a common set of skills and knowledge - both academic and technical - necessary to pursue a full range of career opportunities within that pathway, ranging from entry level to management, including technical and professional career specialties. Based on the skill sets taught, all CTE courses are aligned with one or more of the career clusters and pathways. – *Virginia Department of Education*
<https://www.careertech.org/sites/default/files/CareerClustersPathways.pdf>

Agriculture, Food & Natural Resources

Food Products and Processing Systems; Plant Systems; Animal Systems; Power, Structural and Technical Systems; Natural Resource Systems; Environmental Service Systems; Agribusiness Systems

Architecture & Construction

Design/Pre-Construction; Construction; Maintenance/Operations

Arts, AV Technology & Communications

Audio and Video Technology and Film; Printing Technology; Visual Arts; Performing Arts; Journalism and Broadcasting; Telecommunications

Business, Management & Administration

General Management; Business Information Management; Human Resources Management; Operations Management; Administrative Support

Education & Training

Administration and Administrative Support; Professional Support Services; Teaching/Training

Finance

Securities and Investments; Business Finance; Accounting; Insurance; Banking Services

Government & Public Information

Governance; National Security; Foreign Service; Planning; Revenue and Taxation; Regulation; Public Management and Administration

Health Science

Therapeutic Services; Diagnostic Services; Health Informatics; Support Services; Biotechnology Research and Development

Hospitality & Tourism

Restaurants and Food/Beverage Services; Lodging; Travel and Tourism; Recreation, Amusements and Attractions

Human Services

Early Childhood Development and Services; Counseling and Mental Health Services; Family and Community Services; Personal Care Services; Consumer Services

Information Technology

Network Systems; Information Support and Services; Web and Digital Communications; Programming and Software Development

Law, Public Safety, Corrections & Security

Correction Services; Emergency and Fire Management Services; Security and Protective Services; Law Enforcement Services; Legal Services

Manufacturing

Production; Manufacturing Production Process Development; Maintenance, Installation and Repair; Quality Assurance; Logistics and Inventory Control; Health, Safety, and Environmental Assurance

Marketing, Sales & Service

Marketing Management; Professional Sales; Merchandising; Marketing Communications; Marketing Research

Science, Technology, Engineering & Mathematics

Engineering and Technology; Science and Mathematics

Transportation, Distribution, Introduction to Business & Marketing, & Logistics

Transportation Operations; Logistics Planning and Management Services; Warehousing and Distribution Center Operations; Facility and Mobile Equipment Maintenance; Transportation Systems/ Infrastructure Planning, Management and Regulation; Health, Safety, and Environmental Management; Sales and Service

Grading Scale

Adopted at the beginning of the 2009-10 school year.

Grade	Numerical Equivalent	Points Awarded
A+	98-100	4.3
A	93-97	4.0
A-	90-92	3.7
B+	87-89	3.3
B	83-86	3.0
B-	80-82	2.7
C+	77-79	2.3
C	73-76	2.0
C-	70-72	1.7
D+	67-69	1.3
D	63-66	1.0
D-	60-62	0.7
F	59 and below	0.0

Report Cards

Students receive report cards four times each year. They are issued on the seventh working day for teachers after the end of each nine-week grading period. Loudoun County Public Schools offers an on-line parent portal to view student assignments, assessments, resources, and grades. The parent portal is intended to open communication between teachers, students, and parents. Authorization forms requesting access are posted on each school's website. <https://www.lcps.org/Domain/17270>

Grade Point Average and Class Rank

Grade point average (GPA) and class rank include all courses for which credit was earned or could have been earned in grades 9-12. Also included are the credit-bearing courses (Algebra I, Parts 1 and 2; Algebra I; Geometry; Algebra II; world language) completed at the middle school level. When a course is repeated, both final course grades are included when calculating the GPA and rank. Based on their GPA, students are ranked at the beginning of the senior year and at the end of each semester of the senior year.

If a student withdraws from a course before the end of the eleventh week of the course, the course is not recorded on the scholastic record. All grades earned are recorded on the transcript. Partial credit is not given for year-long courses dropped at the end of the first semester; however, grades earned are included in the determination of grade point average and class rank.

If a student withdraws from a year-long course after the second week of second semester, WP, WF, or F will be recorded for the remaining grading periods. The final grade is recorded on the scholastic record and included when calculating grade point average and class rank if the grade is an F. See corresponding chart under "Dropping Subjects/Withdrawals."

Advanced Placement, Honors, Dual Enrollment, Academy of Engineering and Technology, and Academy of Science courses are all weighted, receiving either 0.5 or 1.0 added to the point value of the grade, with the exception of a grade of "F." Weighting designations are listed in the index of this publication.

Dropping Subjects/Withdrawals

Students or parents should contact their school counseling office if the student wishes to drop a course. The chart below explains if and how dropping a class affects the student's GPA and class rank, as per LCPS Regulation 5-5.

Full-year Course – One Credit

*First Grading Period	Courses Dropped will not be counted in GPA or class rank
Second Grading Period	WP or WF recorded Courses dropped will not be counted in GPA or class rank
Third Grading Period	WP or WF recorded Courses dropped will not be counted in GPA or class rank
Fourth Grading Period	WP or F is recorded Courses dropped will not be counted in GPA unless it is an F An F will be calculated into GPA and class rank.

The above explanation for dropping a course does **not** pertain to any Dual Enrollment course.

Semester Course – Half Credit

*First Grading Period	Courses dropped will not be counted in GPA
Second Grading Period	WP or F is recorded Courses dropped will not be counted in GPA unless it is an F F will be calculated into GPA and class rank

GPA	Courses dropped will not be counted in grade point average except when an F is received
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*For the first grading period only, a student enrolled in a full-year or one-semester course will have one week (5 school days) after the date on which report cards are sent home, in which to drop a course without having a grade recorded.

Course Selection, Course Load, and Schedule Changes

Courses listed will be included in the curriculum for the 2018-2019 school year if there are sufficient enrollment and available staff. Students in Grades 6-8 are expected to select and be enrolled in 8 classes, one of them being Resource or Spectrum. Students in Grades 9-11 are expected to select and be enrolled in 7 credit subjects or their equivalent and adhere to their selections, and may take up to 8 courses per year. Schedule change procedures are established by each school and in special situations. Any variation requires the principal's permission.

Requests from students or their parents for a change in teacher(s) cannot be allowed since such changes impact teaching loads and schedules. Consideration is given to requests from students assigned to repeat work with a teacher under whom they have previously failed. Final approval rests with the principal.

Note: Any elective course that does not have sufficient enrollment may be canceled. Courses with low enrollment may be offered in alternate years or not at all.

Availability of Classes

Some classes listed in this publication at both the middle and high levels may not be offered at all schools. If enrollment in a class is low, the class may not be available, semester and year-long classes may be combined, or, as stated above, it is possible that the class may not be offered at all. The school counseling offices in each school will be able to provide information on what classes are available at that school.

Selection of Courses

Middle School

Students may select a combination of academic and honors classes in English, Science, Mathematics, and Social Science. Classes designated as Honors in middle school are not weighted when determining a student's grade point average.

Both levels build on previous skills and require academic effort and independent efforts outside school. Both levels expect students to commit to regular and frequent homework; however, honors level classes will require a greater commitment of time and effort outside class. Honors level extension activities will be available for all teachers to use. Grading practices within the honors level will also carry a greater expectation for work, independent student, and concept mastery at a higher cognitive level.

To select courses that reflect the goals for each student, parents should assist their student consider the following:

- What grades have been earned in the subject over the past few years?
- What information do the standardized test scores and other measures tell the student about their special skills and interests?
- Is the student willing to make the time commitment that each course requires?
- What are the recommendations of the student's parents, teachers, and counselors?

In mathematics, the skills required to be successful are more sequential and developmental than in other courses. Therefore, guidelines are set for recommended placement in middle school mathematics classes based on a student's success on standardized tests and previous math performance.

Parents are encouraged to discuss with school counselors, teachers, or the principal and questions about placement for their child in any class. All middle school students are encouraged to take at least one Honors level course each year.

Selection of Courses

High School

All high school students should choose challenging classes that maximize their learning opportunities. Rigorous high school courses prepare students well for further education and successful careers.

Parents and students should consider the following when making decisions about which level to choose:

- Previous performance in subject area
- Standardized test scores
- Commitment of the student
- Recommendations from teachers, counselors, and the principal

The applicable Virginia Standards of Learning (SOL) are incorporated in all classes.

Course Level Designations – Middle and High

Honors, AP, and DE: Course content is rapidly paced with additional depth. Lessons are often designed to be complex, abstract, and open-ended.

Academic: Course content and expected student performance require additional reading and writing at a rigorous level.

Grade Level (middle school): Course content challenges students to master rigorous standards while providing individualized support.

One-Semester Courses

Students receive one-half unit of credit for each semester course successfully completed.

Full-Year Courses

Students receive one standard unit of credit based on successful completion of a full-year course. Some full-year courses may offer more than one standard unit of credit.

Students do not receive any partial credit for a full-year course. For example, a student who passes a year-long course at the semester but fails for the year would not earn partial credit for the passing grade at semester, or a student who does not continue a year-long course beyond the first semester does not receive partial credit at the semester for the course; rather, the student must repeat the entire course to obtain credit for it.

Non-Credit Activities

A student who serves as a student helper or who is scheduled for study hall, Student Cooperative Association (SCA), CAMPUS, PEER Helper program, literary magazine, or video productions does not receive a credit for that class period.

Courses Already Passed

Students who pass a course may repeat it for grade improvements, but a duplicate credit will not be awarded. Both grades are recorded on the student's transcript and are included when calculating grade point average and class rank.

Sequential Electives

Students seeking Standard or Modified Standard diplomas must earn at least two electives that are sequential. These must be two electives in one subject area such as Art I and II, Applied Technology I and II, etc. Students should talk with their school counselor for further details.

Fine Arts or Career and Technical Education

A fine arts or career and technical education course is any state-approved course completed in Grades 9-12 in Art, Drama (Theatre Arts), Newspaper Journalism, NJROTC, Photojournalism, Music, or Career and Technical Education (including Business, Family & Consumer Sciences, Health Occupations, Marketing, Trade and Industrial, and Technology Education).

Licensure and Certification Programs

Certain programs within Career and Technical Education provide students with an opportunity for professional licensure or certification that can also count as a "Student Choice" verified credit toward those required for graduation.

To obtain the credit, the student must successfully complete the course sequence that prepares individuals for state licensure or certification and pass the test required by the certifying agency.

Such licenses and certifications provide students a competitive edge in the workplace, offer better opportunities for earning money for college expenses, may provide increased options in military service, and help to define career pathways.

Information about substitute tests is available from the student's school counselor or by going to www.doe.virginia.gov and clicking on "Graduation Requirements," then "Substitute for Verified Credit."

Credits from Middle School

Students who complete Algebra I, Geometry, Algebra II, and/or the regular first, second, or third year of a world language in middle school earn a high school credit for courses in those subjects. Each credit counts toward graduation requirements and is included in the grade point average and class rank.

Incomplete Grades

Teachers may assign "Incomplete" grades in instances where the required assignments have not been submitted due to unusual but excused circumstances. In such cases, the teacher shall assign a deadline for making up the work; however, the work must be completed by the end of the following grading period.

Incomplete grades may not be carried over from one academic year to another.

Expunging Grades

The parent of any student who, while in middle school, took a high school credit-bearing course may elect to have the grade (and credit) permanently expunged (removed) from the student's transcript. If the parent elects to have such a grade permanently expunged, written notice of such election must be given by the parent to the student's middle school counselor (rising 7th and 8th graders) or to the school counseling department of the high school the student will attend (rising 9th graders), on or before August 15 of the year in which the student finishes 8th grade. Parents of students eligible to make this election shall be provided written notice thereof and a form to be used for such election when the student receives the final report card from the middle school. LCPS Policy §5-5.1.

Promotion

Middle School

From Grade 6 to 7 and Grade 7 to 8:

Pass a minimum of three of the four core academic subjects: English; Mathematics; Science; Social Science.

From Grade 8 to 9:

Pass a minimum of three of the four core academic subjects: English; Mathematics; Science; Social Science *and* pass any year-long elective course, two one-semester courses, or health/physical education course.

Promotion

High School

High school students must have earned the minimum number of credits listed below to be promoted to the next grade level. A student's grade level is not subject to change during the school year.

Grade 10: 5 credits

Grade 11: 11 credits

Grade 12: The student must be scheduled to meet all graduation requirements by June.

Standard and Verified Credits

A standard unit of credit is earned by passing a course with 140 clock hours of instruction.

A verified unit of credit is earned by passing a course and its related end-of-course Standard of Learning (SOL) test where an end-of-course test is required. Students may repeat end-of-course tests to earn the verified credits needed for graduation.

Graduation Requirements

Students must meet the graduation requirements based on when they enter the 9th grade for the first time. Requirements for graduation listed in this publication reflect those adopted by the Virginia Board of Education.

Summer School Graduation

Students completing graduation requirements in a state-accredited summer school are eligible for diplomas. The last school attended during the regular session awards the diploma.

Beginning with the 9 th grade class of 2013-2014 through the 9 th grade class of 2017-2018	Advanced Studies Diploma		Standard Diploma	
	Standard Units of credit	Verified Units of credit	Standard Units of credit	Verified Units of credit
Required Courses				
English Grades 9, 10, 11, 12	4	2	4	2
Mathematics¹ Courses completed to satisfy this requirement shall include at least two different course selections from among: Algebra I; Geometry; Algebra, Functions and Data analysis; Algebra II; or other mathematics courses above the level of Algebra II. The board shall approve courses to satisfy this requirement.	4	2	3	1
Laboratory Science^{1,2} Courses completed to satisfy this requirement shall include course selections from at least two different science disciplines: earth sciences, biology, chemistry or physics or completion of the sequence of science courses required for the International Baccalaureate Diploma. The board shall approve courses to satisfy this requirement.	4	2	3	1
History and Social Science² Courses completed to satisfy this requirement shall include U.S. and Virginia History, U.S. and Virginia Government, and one course in either world history or geography or both. The board shall approve courses to satisfy this requirement.	4	2	3	1
Health and Physical Education	2		2	
World Language The Advanced Studies Diploma contains a requirement for either three years of one foreign language or two years of two foreign languages. In March 1998, the Board of Education approved the provision of three years of instruction in American Sign Language (ASL) for world/foreign language credit toward an Advanced Studies Diploma; other world/foreign languages will satisfy this requirement as well. Details of this action can be found on the Virginia Department of Education website.	3			
Fine Arts or Career and Technical Education¹ The Standard, Advanced Studies, and Modified Standard Diplomas each contain a requirement for one standard unit of credit in Fine Arts or Career and Technical Education.	1			
World Language, Fine Arts, or Career and Technical Education^{1,3} Pursuant to Section 22.1-253.13:4, <i>Code of Virginia</i> , credits earned for this requirement shall include one credit in fine or performing arts or career and technical education.			2	
Economics and Personal Finance	1		1	
Electives⁴	3		4	
Student Selected Test A student may utilize additional tests for earning verified credit in computer science, technology, career and technical education, economics or other areas as prescribed by the Board in 8 VAC 20-131-110.		1		1
CTE Credential^{1,3} A student must earn a Board-approved career and technical education credential to graduate with a Standard Diploma.			Required	
Virtual Course A student must successfully complete one virtual course, which may be non-credit bearing course or a required or elective credit-bearing course that is offered online.	Required		Required	
Total	26	9	22	6

See footnote explanations on next page.

Beginning with the 9th grade class of 2013-2014 through the 9th grade class of 2017-2018:

¹Per the Standards of Quality, a computer science course credit earned by students may be considered a mathematics course credit *or* a science course credit *or* a career and technical education course credit.

²Students who complete a career and technical education program sequence and pass an examination or occupational competency assessment in a career and technical education field that confers certification or an occupational competency credential from a recognized industry, or trade or professional association or acquires a professional license in a career and technical education field from the Commonwealth of Virginia may substitute the certification, competency credential or license for (1) the student selected verified credit and (2) either a science or history and social science verified credit when the certification, license or credential confers more than one verified credit. The examination or occupational competency assessment must be approved by the board as an additional test to verify student achievement.

³Students shall earn a career and technical education credential approved by the Board of Education, except when a career and technical education credential in a particular subject area is not readily available or appropriate or does not adequately measure student competency, in which case the student shall receive satisfactory competency-based instruction in the subject area to satisfy the standard diploma requirements. The career and technical education credential, when required, could include the successful completion of an industry certification, a state licensure examination, a national occupational competency assessment, or the Virginia workplace readiness assessment.

⁴Sequential Electives: Students who wish to receive a Standard or Modified Standard Diploma must successfully complete two sequential electives. Sequential electives may be in any discipline as long as the courses are not specifically required for graduation.

The board shall establish, through guidelines, credit accommodations to the standard and verified credit requirements for a Standard Diploma. Such credit accommodations for students with disabilities may include: approval of alternative courses to meet the standard credit requirements; modifications to the requirements for local school divisions to award locally awarded verified credits; approval of additional tests to earn a verified credit; adjusted cut scores required to earn verified credit; and allowance of work-based learning experiences. The student's

*Beginning with **first-time ninth-grade students in the 2016-2017 school year**, students shall be trained in emergency first aid, cardiopulmonary resuscitation, and the use of automated external defibrillators, including hands-on practice of the skills necessary to perform cardiopulmonary resuscitation. Students with an Individualized Education Program (IEP) or 504 Plan which documents that they cannot successfully complete this training shall be granted a waiver from this graduation requirement, as provided in 8VAC20-131-420 B.*

For students entering 9 th grade in the 2018-2019 school year	Advanced Studies Diploma		Standard Diploma	
Required Courses	Standard Units of credit	Verified Units of credit	Standard Units of credit	Verified Units of credit
English Grades 9, 10, 11, 12	4	2	4	2
Mathematics¹ Courses completed to satisfy this requirement shall include at least two different course selections from among: Algebra I; Geometry; Algebra, Functions and Data analysis; Algebra II; or other mathematics courses approved by the board to satisfy this requirement.	4	1	3	1
Laboratory Science^{1,2} Courses completed to satisfy this requirement shall include course selections from at least two different science disciplines: earth sciences, biology, chemistry or physics or completion of the sequence of science courses required for the International Baccalaureate Diploma. The board shall approve courses to satisfy this requirement and shall include interdisciplinary courses that incorporate Standards of Learning content from multiple academic areas. The board shall approve courses to satisfy this requirement.	4	1	3	1
History and Social Science² Courses completed to satisfy this requirement shall include Virginia and U.S. Virginia History, Virginia and U.S. Government, and one course in either world history or geography or both. The board shall approve courses to satisfy this requirement.	4	1	3	1
Health and Physical Education	2		2	
World Language The Advanced Studies Diploma contains a requirement for either three years of one foreign language or two years of two foreign languages. In March 1998, the Board of Education approved the provision of three years of instruction in American Sign Language (ASL) for world/foreign language credit toward an Advanced Studies Diploma; other world/foreign languages will satisfy this requirement as well. Details of this action can be found on the Virginia Department of Education website.	3			
Fine Arts or Career and Technical Education³ The Standard, Advanced Studies, and Modified Standard Diplomas each contain a requirement for one standard unit of credit in Fine Arts or Career and Technical Education.	1			
World Language, Fine Arts, or Career and Technical Education³ Pursuant to Section 22.1-253.13:4, <i>Code of Virginia</i> , credits earned for this requirement shall include one credit in fine or performing arts or career and technical education.			2	
Economics and Personal Finance	1		1	
Electives⁴	3		4	
CTE Credential A student must earn a Board-approved career and technical education credential to graduate with a Standard Diploma.			Required	
Virtual Course A student must successfully complete one virtual course, which may be non-credit bearing course or a required or elective credit-bearing course that is offered online.	Required		Required	
Total	26	5	22	5
Additional Requirements for Graduation⁵				

See footnote explanations on next page.

Beginning with the 9th grade class of the 2018-2019 school year:

¹Per the Standards of Quality, a computer science course credit earned by students may be considered a mathematics course credit or a science course credit.

²Students who complete a career and technical education program sequence and pass an examination or occupational competency assessment in a career and technical education field that confers certification or an occupational competency credential from a recognized industry, or trade or professional association, or acquires a professional license in a career and technical education field from the Commonwealth of Virginia may substitute the certification, competency credential, or license for either a laboratory science or history and social science verified credit. The examination or occupational competency assessment must be approved by the board as an additional test to verify student achievement.

³Per the Standards of Quality, credits earned for this requirement shall include one credit in fine or performing arts or career and technical education. Per the Standards of Quality, a computer science course credit earned by students may be considered a career and technical course credit.

⁴Sequential Electives Courses to satisfy this requirement shall include at least two sequential electives as required by the Standards of Quality. Sequential electives may be in any discipline as long as the courses are not specifically required for graduation.

⁵In accordance with the Standards of Quality, students shall either (i) complete an Advanced Placement, honors, or International Baccalaureate course, or (ii) earn a career and technical education credential approved by the board, except when a career and technical education credential in a particular subject area is not readily available or appropriate or does not adequately measure a student competency, in which case the student shall receive satisfactory competency-based instruction in the subject area to satisfy the standard diploma requirements. The career and technical education credential, when required, could include the successful completion of an industry certification, a state licensure examination, a national occupational competency assessment, or the Virginia workplace readiness assessment.

*Beginning with **first-time ninth-grade students in the 2016-2017 school year**, students shall be trained in emergency first aid, cardiopulmonary resuscitation, and the use of automated external defibrillators, including hands-on practice of the skills necessary to perform cardiopulmonary resuscitation. Students with an Individualized Education Program (IEP) or 504 Plan which documents that they cannot successfully complete this training shall be granted a waiver from this graduation requirement, as provided in 8VAC20-131-420 B.*

Demonstration of the five C's: Students shall acquire and demonstrate foundational skills in critical thinking, creative thinking, collaboration, communication, and citizenship in accordance with the Profile of a Virginia Graduate approved by the board.

Modified Standard Diploma Course Requirements
(for certain students entering high school before the 2013-2014 school year)

For students entering 9th grade in the 2013-2014 school year and beyond, the Modified Standard Diploma is folded into the Standard Diploma. Credit accommodations will be provided for students with disabilities. Guidelines for credit accommodations will be issued by the Board of Education.

This diploma is intended for certain students at the secondary level who have a disability and are unlikely to meet the credit requirements for the Standard Diploma. The student's Individualized Education Plan (IEP) team and the student's parents determine eligibility and participation at any point after the student's 8th grade year.

Students may choose to pursue the Standard or Advanced Studies Diploma at any time throughout their high school careers.

Students must earn 20 units of credit and pass literacy and numeracy competency assessments. The following assessments may be used: 8th grade English (Reading) and mathematics Standards of Learning tests to meet the literacy and numeracy requirements. The following end-of-course tests may be used as substitutes:

- 8th grade English
- Reading/Literature and Research (administered near the end of English 11) may be substituted for the 8th grade Reading test
- 8th grade Mathematics
- Algebra I, Geometry, or Algebra II may be substituted for the 8th grade Math test

Discipline Area	Standard Units of Credit
English	4
Mathematics ¹	3
Laboratory Science ²	2
History and Social Science ³	2
Health and Physical Education	2
Fine Arts or Career and Technical Education	1
Electives ⁴	6
Total	20

¹Courses completed to satisfy this requirement shall include content from among applications of algebra, geometry, personal finance and statistics in courses that have been approved by the Board.

²Courses completed shall include content from at least two of the following: applications of earth science, biology, chemistry, or physics in courses approved by the Board.

³Courses completed to satisfy this requirement shall include one unit of credit in U.S. and Virginia History and one unit of credit in U.S. and Virginia Government in courses approved by the Board.

⁴Courses to satisfy this requirement shall include at least two sequential electives in the same manner required for the Standard Diploma.

Electives

- **Sequential Electives** – Effective with the graduating class of 2003, students who wish to receive a Standard or Modified Standard Diploma must successfully complete two sequential electives. On February 5, 2002, the Board of Education approved [Guidelines for Sequential Electives for the Standard and Modified Standard Diploma \(PDF\)](#).
- Sequential electives may be in any discipline as long as the courses are not specifically required for graduation.
- Courses used to satisfy the one unit of credit in a fine arts or career and technical education course may be used to partially satisfy this requirement.
- For career and technical education electives, check with the Office of Career and Technical Education at 804.225.2051.
- An exploratory course followed by an introductory course may not be used to satisfy the requirement.
- An introductory course followed by another level of the same course of study may be used.
- Sequential electives do not have to be taken in consecutive years.
- **Fine Arts and Career and Technical Education** – The Standard, Advanced Studies, and Modified Standard Diplomas each contain a requirement for one standard unit of credit in Fine Arts or Career and Technical Education.

http://www.doe.virginia.gov/instruction/graduation/modified_standard.shtml

Other Graduation Certificates and Diplomas

Applied Studies Diploma

Available to students with disabilities who complete the requirements of their IEP and who do not meet the requirements for other diplomas.

Certificate of Program Completion

Available to students who complete prescribed programs of studies defined by a local school board but who do not qualify for diplomas.

http://www.doe.virginia.gov/instruction/graduation/other_diploma.shtml

Awards for Exemplary Student Performance

Students meeting specific requirements for graduation and demonstrating exemplary performance may receive diploma seals for recognition. VDOE makes available to local school divisions the following seals:

Diploma Seals	Standard Diploma	Advanced Studies Diploma
Virginia Board of Education Seal	Student completes program with an average grade of "A"	Student completes program with an average grade of "A"
Governor's Seal	Not Applicable	Students who complete the requirements for an Advanced Studies Diploma with an average grade of "B" or better and successfully complete college-level coursework that shall earn the student at least 9 (nine) transferrable college credits in Advanced Placement (AP), International Baccalaureate (IB), Cambridge, or dual enrollment courses.
Seal of Advanced Mathematics and Technology	The student must earn either a Standard Diploma or an Advanced Studies Diploma and (i) satisfy all of the mathematics requirements for the Advanced Studies Diploma with a "B" average or better and (ii) pass an examination in a career and technical education field that confers certification from a recognized industry, or trade or professional association; acquire a professional license in a career and technical education field from the Commonwealth of Virginia; or pass an examination approved by the board that confers college-level credit in a technology or computer science area. The board shall approve all professional licenses and examinations used to satisfy these requirements.	
Career and Technical Education Seal	The student must earn a Standard diploma or an Advanced Studies Diploma and complete a prescribed sequence of courses in a career and technical education concentration or specialization that they choose and maintain a "B" or better average in those courses or (i) pass an examination or an occupational competency assessment in a career and technical education concentration or specialization that confers certification or occupational competency credential from a recognized industry, trade, or professional association or (ii) acquire a professional license in that career and technical education field from the Commonwealth of Virginia. The board shall approve all professional licenses and examinations used to satisfy these requirements.	
Excellence in Civics Education	The student must earn either a Standard Diploma or an Advanced Studies diploma and (i) complete Virginia and United States history and Virginia and United States government courses with a grade of "B" or higher; (ii) have good attendance and no disciplinary infractions as determined by local school board policies; and (iii) complete 50 hours of voluntary participation in community service or extracurricular activities. Activities that satisfy the requirements of clause (iii) of this subdivision include (a) volunteering for a charitable or religious organization that provides services to the poor, sick, or less fortunate; (b) participating in Boy Scouts, Girl Scouts, or similar youth organizations; (c) participating in JROTC; (d) participating in political campaigns or government internships, or Boys State, Girls State, or Model General Assembly; or (e) participating in school-sponsored extracurricular activities that have a civics focus. Any student who enlists in the United States military prior to graduation shall be deemed to have met this community service requirement.	
Seal of Bilingualism	The student must demonstrate proficiency in English and at least one other language and meet additional criteria established by the board.	
Seal for Excellence in Science and the Environment	The student must earn either a Standard Diploma or Advanced Studies Diploma and (i) complete at least three different first-level or postsecondary-level laboratory science course, each with a grade of "B" or higher; (ii) complete laboratory or field-science research and present that research in a formal, juried setting; and (iii) complete at least 50 hours of voluntary participation in community service or extracurricular activities that involve the application of science such as environmental monitoring, protection, management, or restoration.	

Transferring into Virginia Public Schools as a High School Student

Each transfer student's academic record is evaluated to determine the number of standard units of credits that have been earned, as well as to ascertain the remaining number of standard and verified units of credit a student needs to graduate. The type of diploma a student wishes to pursue determines the total number of standard and verified credits necessary for graduation. Transfer courses which a student completed in a school division prior to enrolling in LCPS are weighted only if those courses are weighted as honors courses in LCPS. For further details about transferring, go to www.doe.virginia.gov and click on transfer information under "Graduation Requirements."

Below is a summary chart of credits needed for graduation. Students should discuss the specific course requirements and course options with the school counselor. "Beginning" includes the time from the first day of school until the end of the first twenty hours of instruction. "During" indicates that the student enrolled after the first twenty hours of instruction.

For students who entered grade 9 in 2017 and prior to:

Time of Transfer	Required for Standard Diploma	Required for Advanced Studies Diploma
During 9 th grade or Beginning of 10 th	22 standard units 6 verified units: 1 in Math 1 in Science 2 in English 1 in Social Science 1 Student Selected	26 standard units 9 verified units: 2 in Math 2 in Science 2 in English 2 in Social Science 1 Student Selected
During 10 th grade or Beginning of 11 th	22 standard units 4 verified units: 1 in Math 1 in Science 1 in English 1 in Social Science	26 standard units 6 verified units: 1 in Math 1 in Science 2 in English 1 in Social Science 1 Student Selected
During 11 th grade or Beginning of 12 th	22 standard units 2 verified units: 1 in English 1 Student Selected	26 standard units 4 verified units: 1 in English 3 Student Selected
During 12 th grade	Students should be given every opportunity to earn a diploma. School counselors work with students to examine options.	

Standardized Exams and Assessments

College-bound Students Recommended Exams

PSAT – Preliminary Scholastic Assessment Test

Students benefit from practice in taking this test and can identify academic strengths and weaknesses while they have the time to work to improve their scores.

Students in the 9th and 10th grades are given the exam in order to provide practice in reading, math, and writing skills to prepare for college admissions exams.

Students in the 11th grade may be eligible for special scholarship competitions based on their PSAT score. Organizations include the National Merit Scholarship, the national Achievement Program, and the National Hispanic Scholars Program.

This test is administered at all high schools on the national test date. The PSAT includes a writing component but does not include an essay.

SAT

Students are encouraged to take the SAT beginning in 11th grade. They may repeat the test several times.

The SAT tests are given several times each year at high schools in and around Loudoun County. Students must register approximately 6 weeks (or more) in advance of the test. Students may register online at www.collegeboard.org. Through online registration, students will learn which testing sites have space availability.

SAT Subject Tests

Subject tests measure students' knowledge and skills in a particular subject and their ability to apply that knowledge. Tests are offered in many subjects. Students may register online at www.collegeboard.org.

The test(s) should be taken toward the end of the completion of the subject. For example, if a student is completing Chemistry in 11th grade, he/she should take the SAT Subject Test in Chemistry in the spring of the 11th grade.

Not all colleges and universities require SAT Subject Tests. Students should check test requirements with colleges in which they have interest.

Students may register for up to three tests in one day. The tests are given on the same dates as certain SAT Reasoning tests.

SAT Subject Test Preparation Booklet, a free publication, is available on the College Board website and provides information about the tests and sample test questions.

ACT – American College Test

The ACT measures academic achievement in English, mathematics, reading, and science reasoning. A writing test is optional. Students should check with specific colleges to see if a writing test is required. Students may register online at www.act.org.

The ACT is given at several high schools in and around Loudoun County. Students should register several weeks prior to the exam to ensure space availability.

AP – Advanced Placement Exams

AP examinations are administered in the spring on nationally standardized dates. They measure the student's knowledge in specific subject areas.

AP courses, taught by dedicated and committed high school teachers, lay the groundwork for students to succeed on the AP exams. In LCPS, all students enrolled in AP classes are encouraged to complete the AP experience by taking the exams near the end of the AP class.

The student's transcript reflects the AP designation independent of the student's election to take the AP exam. All final grades are weighted by 1.0 if the student passes the course.


Students who elect to take an AP exam without taking the course may have their scores sent to the college(s) or university(ies) to which they plan to apply; however, units of credit are awarded only to those students who complete the related AP courses.

TOEFL – Test of English as a Foreign Language

The TOEFL measures a student's ability to read, write, and understand English. Students who are applying to college and for whom English is a second language can demonstrate their ability to use English. Some colleges and universities require this test for second language speakers. Some colleges and universities will accept the SAT Subject Test in English as a second language in lieu of the TOEFL.

Standardized Assessments

SOL – Virginia Standards of Learning

Virginia requires that students take Standards of Learning (SOL) tests in certain academic subjects. This icon  is used beside the course descriptions of courses with SOL tests at the end of the course.

SOL tests of certain courses determine whether the student receives a verified credit – a certain number of which are required for graduation depending on when the student first enters the 9th grade.

Descriptions of Virginia's testing program and information about the standards which are tested can be located on the Virginia Department of Education website: www.doe.Virginia.gov.

SOL tests and approved substitute tests are a major factor when determining a school's accreditation status.

English Language Proficiency Test: ACCESS

ACCESS measures understanding of spoken and written standard American English and the ability to use English in the classroom and in daily life. It is designed for students who are not native speakers of English and/or whose best language is not English and/or who usually speak a language other than English at home or at work. The test concentrates on academic and practical use of English.

Earning College Credit while in High School

AP – Advanced Placement

The Advanced Placement Program, often known as AP, is a cooperative education endeavor with the College Board. AP courses allow students the opportunity to take college-level courses while they are enrolled in high school. Students who enroll in an AP course should expect extensive reading, writing, and critical thinking which generally require additional time.

In the spring, students are encouraged to take the nationally standardized AP examination(s). **Colleges and universities may award academic credit and/or special placement if a student earns a qualifying score on the exam given in May.** AP final grades are weighted by adding 1.0 to the point value for the grade if the student passes the course.

Examples of a few benefits of taking AP classes include development of study habits necessary for tackling rigorous coursework; improvement of writing skills and problem-solving techniques; studying subjects in greater depth and detail.

DE – Dual Enrollment

Participation in Dual Enrollment (DE) courses allows students to meet requirements for high school graduation while simultaneously earning college credits upon successful completion of the course. DE courses taught at the high school by a credentialed LCPS teacher enable students to earn these credits through agreements with partnering colleges or universities. DE course descriptions list the number of college credits that can be earned.

DE course offerings in LCPS high schools are determined by student interest, existing course offerings, and availability of teachers possessing the endorsements required to teach the course. Not all DE courses will be available at all LCPS high schools. Students should speak with their school counselor to determine which courses are available at their high school.

If a student enrolls in a DE course, they may be required to meet certain admission criteria set forth by the partnering college or university. Students will work directly with their high school to determine what those requirements may be and how to register for that course. DE courses through Northern Virginia Community College (NVCC) are available for students in 11th and 12th grades, and students must pass the Virginia Placement Test (VPT) administered by NVCC or by a substitute assessment, such as the PSAT or SAT. In addition, there may be certain prerequisites required for specific courses. Some DE classes may require a tuition payment.

The transferability of a college course to another college or university for credit is determined by the receiving institution. Normally, academic courses intended for transfer with a grade of "C" or better will transfer to four-year institutions of higher learning; however, no guarantee can be made to students regarding transferability to *all* colleges and universities. This information may be found on most college and university websites or by contacting the office of admissions.

Current partnering institutions include: Northern Virginia Community College; George Mason University; James Madison University; Richard Bland College; Shenandoah University; University of Illinois.

Dual Credit

If a student wishes to enroll in a course at a college or university and simultaneously receive high school credit, prior permission by the high school is required. To be eligible for high school credit, the course must fulfill a requirement for the student's high school diploma and not be offered at the high school in which the student is enrolled. For more information, please contact the school counseling office to discuss this option.

Online Courses

Virtual Course Opportunities

A student may apply for enrollment in selected high school credit courses if space is available with the approval of school counseling staff and the school's principal. An online form is posted on the LCPS website or parents can contact their school's school counseling office for the course application. Enrollment is subject to approval and space is limited. The completed application must be submitted to the home school's counselor. Enrollment is contingent upon final approval from the online coordinator and families will be notified.

Virtual Loudoun

Virtual Loudoun offers online courses through LCPS VISION using content that is aligned to the Standards of Learning to offer new educational opportunities to students. These courses present educational material and credit courses at the high school level to students using online resources. LCPS also uses other online vendors to offer courses to students. Virtual Loudoun courses are full-year courses offered in a condensed term. Students should expect, on average, to dedicate 140 hours to complete a 1 credit course within the term period.

Special Programs and Opportunities

AVID

AVID, or Advancement via Individual Determination, is a national program targeting students in the academic middle – "B", "C", or even "D" students – who have a desire to go to college and the willingness to work hard in rigorous middle and high school courses. AVID students enroll in honors and AP courses, when eligible, and an AVID elective course. During this elective class, students learn organizational and study skills, work on building critical thinking skills, receive academic help from peers and tutors, and participate in enrichment and motivational activities. AVID students are expected to participate each year the elective is offered. AVID is available at the following schools: JLS, SMM, SRM, and STM middle schools; DHS, LCHS, PVHS, and THS high schools.

CAMPUS

CAMPUS is a non-credit bearing class available for high school students. CAMPUS is an academic and college preparation program designed to meet the specific needs of LCPS students who are prospective first-generation college students in attaining higher post-secondary education.

Douglass School

Douglass School, Loudoun County Public School's Center for alternative education, offers the Alternative Education Program (AEP) for under-performing students, students who do not feel a part of a large traditional high school, and for students who have moved into LCPS from another school system that used an alternative schedule format. Douglass strives to create an environment in which students are able to perform to the best of their ability and fosters respect, responsibility and cooperation. The AEP offers smaller class sizes, and alternative block schedule, an emphasis on organization and study skills, and individualized instruction to help students experience success. Douglass courses follow the LCPS curriculum including the administration of end-of-year SOL exams. Students adhere to the same behavioral expectation and complete the same requirements for promotion/graduation as do other LCPS students. Openings are limited and referrals are made through home school counselors.

Scheduled Early Dismissal

All students are to be enrolled in school for the full school day. Students enrolled in cooperative education programs may be granted an early dismissal as long as they are enrolled in five credit subjects or their equivalent.

In cases of extreme hardship, a junior or senior must obtain an application from the principal for early dismissal that is submitted to the Superintendent or his designee for approval.

Senior Year Plus

The Senior Year Plus initiative is designed to help better prepare highly motivated students for life after high school. While a high school diploma is a minimum credential for any career, college degrees or other career credentials mean better paying jobs. The program encourages seniors to make the most of their senior year.

Two programs comprise the Senior Year Plus Initiative:

- **Early College Scholars**
- **Path to Industry Certification**

The **Early College Scholars** program allows students to commit to earning a full semester of college credit before leaving high school. Students may earn the credits through a combination of Advanced Placement and Dual Enrollment courses. Students become "Early College Scholars" by meeting the qualifications and signing an agreement with their school counselor.

To qualify, a student must:

- Have a "B" average or better
- Be pursuing an Advanced Studies Diploma

- Be completing or have completed college-level coursework, such as Advanced Placement or Dual Enrollment equal to at least 15 transferable college credits.

Students in the program may also register for televised and online Virtual Advanced Placement classes not offered by LCPS with prior approval.

Early College Scholars receive a diploma seal and certificate from the Governor recognizing their achievement. To register, students and parents should speak with their school counselor at the end of their junior year.

The **Path to Industry Certification** is designed for students who plan to continue working on their high school diploma while concurrently pursuing technical training for a selected industry certification. Often this industry certification continues after high school graduation.

Thomas Jefferson High School for Science and Technology

TJHSST students are selected on the basis of aptitude and interest in the biological, physical, mathematical, and computer science fields. Since this Governor's School for Science and Technology is located in Northern Virginia, the school serves qualified applicants from several area school districts, including Loudoun County. LCPS provides transportation for all students who are accepted to this school.

Students are selected to attend through a competitive process that evaluates admission test scores, academic achievement, personal essays, teacher recommendations, and self-reported interests and activities. Approximately 10% of the applicants are accepted. Most students enter as 9th graders. Replacements are selected for vacancies at the 10th grade level only.

Applications are available in all middle schools. The student should see their counselor by October 1st of their 8th grade year for the most current information. An open house is held during October prior to the deadlines for applications and testing. Questions should be directed to the TJHSST Admissions Office at 703-750-8335. More information can be found at their website <http://www.tjhsst.edu>.

World Language Credit for English Language Learners

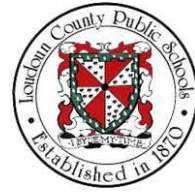
Speaker of English as a second language should confer with their school counselor regarding a sequence of world language study that can lead to an Advanced Studies Diploma.

Athletic and Activity Participation

To be eligible to participate in any Virginia High School League competition, a student must be currently enrolled in five subjects for credit or the equivalent and have passed five subjects for credit or the equivalent the previous semester. If a passed course is being repeated that course may **not** be counted as one of the five subjects for credit. The Virginia High School League rules specify that to participate in varsity or junior varsity athletics, drama, forensics, debate, scholastic bowl, cheerleading, and any academic or athletic activity involved in competition between/among schools, a student must have passed five

subjects during the preceding semester and must be enrolled in five subjects during the current semester. In addition to meeting the Virginia High School League regulations, students will be required to earn at least a 2.0 grade point average each semester. Grades earned during the second semester of the 2017-2018 school year will determine eligibility for the first semester of the 2018-2019 school year. Students who do not meet the grade point average requirement in each semester and who wish to participate have the option to use a waiver which is available to them for one semester during the high school years.

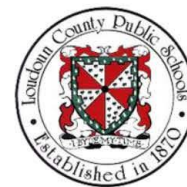
Students and parents should visit www.ncaa.com for eligibility requirements, which includes standardized testing information.



LCPS Mathematics Progression

The information shared illustrates student possible pathways through the LCPS Mathematics Progression. We recommend you work with school teams to make decisions about course selection.

Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Math 6	Math 7	Math 8	Algebra I	Functions, Algebra, and Data Analysis	Geometry	Algebra II
				Geometry	Algebra II	Advanced Functions and Modeling
						Discrete Math/Probability and Statistics
						Pre-Calculus
		Algebra I	Geometry	Algebra II	Pre-Calculus	AP Calculus AB
					Discrete Math/Probability and Statistics	AP Statistics
					Computer Math	AP Computer Science
				Algebra II/Trig	Math Analysis	AP Calculus BC
		Math 8	Geometry	Algebra II/ Trig	Pre-Calculus	AP Calculus AB
					Math Analysis	AP Calculus BC
Accelerated Math 6/7	Algebra I	Geometry	Algebra II/ Trig	Pre-Calculus	Computer Math	AP Computer Science
					AP Calculus AB	AP Calculus BC
				Math Analysis	AP Calculus BC	Multivariable Calculus Prerequisite: Students must obtain a 3 or higher on the AP Calculus BC Exam.



LCPS Mathematics Progression

* All classes with an asterisk are honors courses that receive a 0.5 weight in GPA.

** All classes with two asterisks are AP level courses that receive a 1.0 weight.

Current Course	Subsequent Course
Algebra I	Geometry
	Functions, Algebra, and Data Analysis (FADA)
Geometry	Functions, Algebra, and Data Analysis (FADA)
	Algebra II
	Algebra II/Trig *
Functions, Algebra, and Data Analysis (FADA)	Geometry
	Algebra II
Algebra II	Advanced Functions and Modeling (AFM)
	Advanced Algebra/ Precalculus
	Probability and Statistics/ Discrete Math (elective)
	AP Statistics **
	Computer Math (elective)
	AP Computer Science (Computer Math is a recommended prerequisite) **
Algebra II/Trig *	Advanced Functions and Modeling (AFM)
	Advanced Algebra/ Precalculus
	Mathematical Analysis *
	Probability and Statistics/ Discrete Math (elective)
	AP Statistics **
	Computer Math (elective)
Advanced Functions and Modeling (AFM)	AP Computer Science (Computer Math is a recommended prerequisite) **
	Probability and Statistics/ Discrete Math (elective)
	Computer Math (elective)
	AP Statistics **
	Advanced Algebra/ Precalculus
Advanced Algebra/ Pre-calculus	AP Computer Science (Computer Math is a recommended prerequisite) **
	AP Calculus AB **
	Probability and Statistics/ Discrete Math (elective)
	AP Statistics **
	Computer Math (elective)
Mathematical Analysis *	AP Computer Science (Computer Math is a recommended prerequisite) **
	AP Calculus AB **
	AP Calculus BC **
	Probability and Statistics/ Discrete Math (elective)
	AP Statistics **
	Computer Math (elective)
	AP Computer Science (Computer Math is a recommended prerequisite) **



LCPS Mathematics Progression

Current Course	Subsequent Course
AP Calculus AB **	AP Calculus BC **
	Probability and Statistics/ Discrete Math (elective)
	AP Statistics **
	Computer Math (elective)
	AP Computer Science (Computer Math is a recommended prerequisite) **
AP Calculus BC **	AP Statistics **
	Multivariable Calculus Dual Enrollment (prerequisite: students must obtain a 3 or higher on the AP Calculus BC Exam)
	Computer Math (elective)
	AP Computer Science (Computer Math is a recommended prerequisite) **
Probability and Statistics/ Discrete Math (elective)	AP Statistics **
	Computer Math (elective)
	AP Statistics **
	Advanced Algebra/ Precalculus
	AP Computer Science (Computer Math is a recommended prerequisite) **
Computer Math (elective)	AP Computer Science **
	Probability and Statistics/ Discrete Math (elective)
	AP Statistics **
	Advanced Algebra/ Precalculus

Middle School

Middle School Program Overview

In Loudoun County Public Schools, middle school provides a supportive and stimulating environment for students as they make the transition into adolescence, increasing academic demands and greater self-reliance.

The middle school program takes in to account the developmental needs of young teenage years that are characterized by uneven social, physical, emotional, and intellectual development.

Middle school bridges the elementary school years that focus primarily on developing basic skills and the high school years that emphasize specialized preparation for post-high school education and careers.

While using and further developing the basic skills, middle school encourages students to explore a variety of subject areas and activities, including careers and special interests.

Keys to Success in Middle School

Middle school can be a rewarding experience. Students who are successful enjoy time in school but also realize that school is serious business, requiring commitment and hard work. Very few students fail because the material presented is too difficult.

Critical keys to success:

- Consistent effort
- Completing all assignments
- Attending school regularly
- Being organized
- Participating in class
- Devoting time each day to serious study and review

Middle School Structure

Houses: Each middle school is divided into three sub-units called Houses, one for each grade level. Each grade level is assigned to an academic house for core curriculum classes, with students moving to other educational elective areas outside their House.

Staff in each House work together to coordinate activities, deliver instruction, and meet a multitude of student needs. The staff in each House may include:

- **Dean:** the primary administrator for the area
- **School Counselor:** provides academic, career, and social/emotional counseling to individuals, groups, and classes
- **Teachers:** provide instruction in the core academic areas and help students develop their academic abilities and skills
- **Secretary:** provides the clerical needs of the House

Each student is assigned to a **homeroom** where the student receives report cards and general information.

Block Schedule

Students at each middle school are in an eight-period, alternating block schedule. Each instructional block is approximately 89 minutes in length. Students have four instruction blocks daily.

Every other day most students have a **Resource** period. For 6th and 7th grade students the resource period lasts approximately 45 minutes; for 8th grade students, the resource period lasts for an entire block. Students selected for Spectrum participate in Spectrum instead of resource period. Some of the activities of the resource period include working directly with teachers to expand learning and interests, receiving remediation and reinforcement of skills, reviewing information that is proving challenging, working on homework, and using the media center.

Spectrum, a year-long class, provides enrichment for 6th, 7th, and 8th grade students who have been identified as gifted in terms of general intellectual ability. This course is offered in place of resource for 6th and 7th graders. 8th graders split a 90-minute block between Spectrum and resource. Eligibility for the gifted program is determined by prescribed criteria established by the school division and approved by the Commonwealth of Virginia. Spectrum offers a variety of multi-disciplinary academic experiences with an emphasis on critical thinking skills and problem solving. Gifted students are further challenged academically by enrolling in honors level instruction, such as science, English, and social science, or in advanced math classes.

Interdisciplinary Teaming

Students are assigned to an interdisciplinary team, a group of academic teachers who share a common group of students. These teachers collaborate to plan and coordinate lessons and assignments, examine individual needs for enrichment and remediation, meet with parents, and work to assure student success.

Registering for Classes

The registration process for rising 6th and current 6th, 7th, and 8th grade students occurs near the beginning of the second semester of each year. School counselors are generally responsible for this activity, but teachers are also involved in making recommendations.

- The grade-level school counselor meets with students in a small group, classroom or resource setting, or individually to explain course options, recommendations, and requirements. Course selections are based on the student's current academic progress and interests as well as teacher recommendations.
- The student shares these course selections with parent/guardians for review. Any questions concerning course selection should be directed to the student's school counselor.
- 6th grade students begin to develop an Academic Career Plan (ACP) with the assistance of their school counselor. The plan allows students to tentatively plan future high school course

selections that support goals for further education and roles in the world of work. Plans can be changed during high school based on the changing needs and desires of individual students.

Decisions made during middle school influence a student's success in academics and future choices.

Course Selection, Courses for High School Credit

The courses selected during middle school impact which courses the students can take during high school.

Students who complete Algebra I, Geometry, or one or two years of a world language in middle school will be able to complete advanced classes, even college-level classes, while still in high school.

Students who begin world language study during middle school will be able to advance their command of the language because they will be able to spend more time studying the language. Also, some students choose to study a second world language while in high school. For other students, early world language study allows them opportunities to pursue advanced career and technical education courses, pursue fine arts studies in more depth, or delve into other areas of study.

Parents and students should be aware that colleges expect students to pursue the most rigorous classes of which they are capable.

Academic and Career Plans

Beginning with the 2010-2011 academic year, all schools began development of a personal Academic and Career Plan (AC) for 6th grade to be completed by the fall of the student's 8th grade year. The components of the ACP shall include, but not be limited to, the student's program of study for high school graduation and a postsecondary career pathway based on the student's academic and career interests.

The ACP is designed to be a working document that maximizes student achievement by having the student accomplish goals in middle and high school that lead to postsecondary and career readiness. In addition, it will provide each middle and high school student a personal learning plan that aligns academic and career goals with the student's course of study.

How to Read the Course Descriptions

The following explains the descriptions, requirements, and electives for each grade level of middle school:

- Course Title: name assigned to each course
- Course Code: number assigned to the course for use with the Student Information System. The course code is generally used by school administrators and school counselors to plan schedules
- Levels: indicate whether the course is grade level or honors
- Prerequisites: the requirements a student must meet to be able to enroll in that class
- Credit: indicates if course receives a high school credit
- SOL Icon: **SOL Test** indicates that the course has a Virginia Standards of Learning test at the end of the school year

The Mathematics Progression Charts included in this publication assists students with their ACPs.

Middle School Course Load

Grade 6	Grade 7	Grade 8
English 6	English 7	English 8
Mathematics	Mathematics	Mathematics
Science 6	Life Science	Physical Science
U.S. History to 1865	U.S. History 1865 to Present	Civics and Economics
Health and Physical Education	Health and Physical Education	Health and Physical Education
Resource 6 or Spectrum 6	Technology Education 7/Family and Consumer Science 7	Resource 8 or Spectrum 8
Keyboarding 6/Art 6	Resource 7 or Spectrum 7/Fine Arts Elective	Elective
Resource 6 or Spectrum 6/Music Elective	Elective	Elective

Grade 6 – Course Descriptions

English 6**Grade Level****100000****Honors****100200**

SOL Test In Grade 6, oral language instruction focuses on participation in small-group activities. Reading instruction emphasizes the elements of literature and narrative structure, the ability to compare information from different sources, and the ability to select information appropriate for a given purpose. Students learn to expand and embed ideas in their writing, to choose appropriate adverbs, and to master subject-verb agreement. Teachers instruct students in the use of word-reference materials to build their vocabulary.

Reading Strategies Workshop (Grade 6)**101600**

Prerequisite: Schools identify students eligible for this program

This course is for students whose reading performance indicates a need to strengthen basic reading skills and strategies, as well as to help students to prepare for the SOL tests. Instruction will focus on phonics, fluency, comprehension, critical thinking, vocabulary, reading engagement, viewing, and test-taking. It will be differentiated according to students' needs. The course will use materials that will assist students with reading in other courses.

Mathematics 6**510000****Level: Grade Level**

SOL Test Mathematics 6 provides increased opportunities for students to apply critical thinking and problem solving as part of their mathematics studies. Activities allow students to make mathematical connections to the constantly changing world in which we live. Proportional reasoning, mathematical communication and reasoning, as well as mathematical applications are emphasized throughout the course. Problem solving is included in all areas of study so students develop a wide range of skills and strategies for solving standard and nonstandard problems. Topics including estimation, number theory, geometry, algebra, and measurement form the foundation for the study of

advanced mathematics later in high school. Emerging technologies are incorporated into the curriculum in order to allow students opportunities to explore concepts. Students completing this course will take the Grade 6 Mathematics SOL test.

Accelerated Mathematics 6/7**512000**

SOL Test The rigorous pre-algebra curriculum is designed to prepare students for an Algebra I course by Grade 7. Instruction will move rapidly as the curriculum includes the content from both Grades 6 and 7 and expands on topics to provide a challenging study of arithmetic, geometric, statistical, and algebraic topics. These topics will form the foundation for the study of advanced mathematics later in high school. The curriculum will engage students in solving non-traditional problems requiring higher order thinking as well as mathematical reasoning and communication. Connections between mathematics and other disciplines through real world applications will enable students to develop confidence in themselves as mathematical problem solvers. Emerging technologies are incorporated into the curriculum in order to allow students opportunities to explore concepts. Students completing this course will take the Grade 7 Mathematics SOL test.

Science 6**Grade Level****610000****Honors****610200**

Science 6 presents an integrated focus on the role of the sun's energy on Earth systems, water in the environment, air and the atmosphere, space, forces, transformations of energy and matter, and basic chemistry concepts. The 6th grade course emphasizes experimentation and data analysis.

Science 6 focuses on continued development of the students' understanding of the nature of science. Lessons are designed to encourage students to create explanations for science concepts that are based on rules of evidence and logical thinking through experimentation, observation, and manipulation of variables.

U.S. History to 1865

Grade Level

710000

Honors

710200

Why do people start a whole new country? How do they do that? Once a country gets started, how do you keep it from falling apart? These are three key questions students learn to answer as they study the first part of American history. As they learn about the birth of our country, and its “rebirth” during the Civil War, students will develop the ability to:

- Read text for content information
- Read and compare primary sources
- Read for the “point of view” of a document
- Understand cause-effect relationships
- Think critically
- Understand diverse cultural backgrounds
- Write with structure and purpose
- Participate in class discussion
- Develop their memory for, and appropriate usage of, Social Science vocabulary
- Apply geographical terms and concepts
- Interpret famous historical speeches

As students build skills in the areas listed above, they develop regular, independent thinking habits in U.S. History. This means they will become “historical thinkers”!

Health and Physical Education 6

410000

Students are offered a variety of challenging activities with an emphasis on fitness for life. In middle school, health and physical education classes are offered every other day.

Students are exposed to instruction in anatomy and physiology, fitness planning, social development, and energy balance. In addition, a wide variety of activities including cooperative games, individual and dual sports, team sports, rhythmic activities, physical fitness testing, lifetime fitness, and recreational activities are offered. The 6th grade health curriculum includes instruction in diet and nutrition, stress and mental health, lifetime fitness and wellness, first aid and safety, communicable and non-communicable diseases, gangs, bullying, health advocacy, and refusal strategies related to alcohol, tobacco, and other drugs. Family Life Education (FLE) is also included in this course.

Keyboarding 6

809701

One Semester

Students learn and develop touch skills for entering alphabetic, numeric, and symbol information on a keyboard.

Keyboarding 6 is designed to help students use the computer efficiently, successfully, and productively.

New skills are strengthened and speed is increased throughout the semester when students use a word processing program to create reports, personal and business letters, journals, and charts.

Students are also exposed to spreadsheet, database, drawing, and painting programs, which will enhance creative and problem-solving skills learned in other classes.

Art 6

200700

One Semester

Art 6 infuses art production, art history, art criticism, and aesthetic critiques. The 6th grade program is designed to provide students with the opportunity to continue to develop a foundation of varied skills, techniques, concepts, and ideas. Students engage in the process of creating, presenting, responding, and connecting with their art and the work of others.

The students establish a continuing portfolio to include written and visual documentation of the creative process.

Resource 6

003000

Students are assigned to a resource class every other day, occupying the same block with the selected music class.

During the class, students are able to take advantage of a variety of opportunities such as obtaining help from teachers, making up tests and assignments, selecting and participating in various enrichment and enhancement activities provided by the school, participating in school counseling classes such as study skills and time management, completing homework, researching topics and assignments, and participating in peer tutoring.

Spectrum 6

010000

Prerequisite: Students are found eligible through a multi-step screening process conducted by educational professionals in Loudoun County and are formally identified as gifted in terms of general intellectual ability.

The curriculum for 6th graders includes the following units:

- Business & Economics
- Technology & Engineering
- Communication & Culture
- Ethics & Perspectives

SOLs from various courses across the middle school curriculum are incorporated into instructional activities.

Chorus 6

235000

This course is for students who like to sing and want to develop their singing skills. Emphasis is placed on developing appropriate vocal techniques and skills necessary for singing in an ensemble. Essential music theory skills will be stressed, including reading notation, ear training and sight singing. Students will develop choral literacy by singing a variety of literature that is sacred and secular. Participation in performance activities, such as winter and spring concerts is required.

Music Lab 6

205000

This class is designed to enable students to enjoy life-long involvement with music as an educated consumer and participant. Active learning is the theme of this hands-on course. Students will explore music and develop musical literacy through activities such as world music drumming, introduction to guitar, singing and creating their own music. Students may also collaborate on unique music projects using web-based tools.

Strings 6 **207000**
This is a full-year elective which provides students with beginning instruction for violin, viola, cello, or bass. Students will learn the basic elements of music while developing the techniques and skills appropriate to an orchestral string instrument. Students will provide their own instruments. Students need to attend Instrumental Clinic Registration Night to select an instrument. Participation in performance activities, such as winter and spring concerts is required.

Band 6 **230000**
This class is open to students who have an interest in learning to play the flute, clarinet, oboe, alto saxophone, bassoon, trumpet, French horn, trombone, euphonium/baritone, tuba, or percussion (snare drum/mallet instruments). Students provide their own instruments through rental or purchase. 5th grade students wishing to join band must attend an evening band clinic held at middle schools in the spring. During this clinic, students will meet with band directors and be evaluated individually on each of the band instruments. This is to ensure they are matched up with an instrument that best suits their natural physical embouchure characteristics and best guarantees their success. Students are required to practice daily outside school time and to participate in concerts and rehearsals after school hours.

Grade 7 – Course Descriptions

English 7
Grade Level **102000**
Honors **102200**
SOL Test In Grade 7, oral language instruction focuses on nonverbal communication as well as on the interpretation of media sources. Reading skills practiced in 7th grade include comparing and contrasting forms, interpreting poems, distinguishing fact from opinion, and using print and electronic sources to locate information. By using roots and affixes and identifying word connotations, students continue to build their vocabulary.

Communication Studies **115400**
Entire Year
This course introduces students to the basic principles of human communication, including interpersonal and small group, intercultural, and mediated (mass or electronic) communication and public speaking. Units of study focus on the communication process, qualities of competent communication, and the role of communication in developing relationships in a democracy. Emphasis will be on developing critical thinking skills and helping students develop their media literacy. This course is project-based; students will exhibit their learning through activities in publication (newspaper, yearbook, literary magazine), broadcast (radio, television, film), and/or public speaking (debate, drama).

Accelerating Literacy Skills **115600**
Entire Year
Students read various texts (mostly self-selected) in order to increase reading speed, comprehension, and vocabulary knowledge. Students write in various modes in order to improve skills in organization, elaboration, sentence variety, word choice, and usage/mechanics. Writing-to-learn and speaking-to-learn are emphasized as methods of improving comprehension and exhibiting content/skill mastery.

Instruction is differentiated for each student's needs. Students who have gaps in language arts knowledge or skills receive instruction with increased rigor and intensity to move them toward grade level performance. Students performing at or above grade level will be guided toward improved performance.

Reading Strategies Workshop (Grade 7) **103600**
Prerequisite: Schools identify students eligible for this program

This course is for students whose reading performance indicates a need to strengthen basic reading skills and strategies, as well as to help students to prepare for the SOL test. Instruction will focus on phonics, fluency, comprehension, critical thinking, vocabulary, reading engagement, viewing, and test-taking. It will be differentiated according to students' needs. The course will use materials that will assist students with reading in other courses.

Mathematics 7 **520000**
Level: Grade Level
SOL Test Mathematics 7 is designed to prepare students for an Algebra I course. The curriculum includes pre-algebra topics and provides a challenging study of arithmetic, geometric, algebraic, and statistical topics. This course provides increased opportunities for students to apply problem solving and critical thinking as part of their mathematics studies. Problem solving is included in all areas of study so students develop a wide range of skills and strategies for solving standard and nonstandard problems. Topics including estimation, number theory, geometry, algebra, and measurement form the foundation for the study of advanced mathematics later in high school. Emerging technologies are incorporated into the curriculum in order to allow students opportunities to explore concepts. Mathematical communication and reasoning are emphasized throughout the course. Students completing this course will take the Grade 7 Mathematics SOL test.

Mathematics 8 **530000**
By Recommendation
SOL Test Mathematics 8 extends concepts and skills and prepares students for more abstract concepts in Algebra I. Problem solving, algebraic thinking, and proportional reasoning are embedded in the study of numbers, computation, measurement, and geometry as well as probability and statistics. Emerging technologies are incorporated into the curriculum in order to allow students opportunities to explore concepts. Mathematical communication and reasoning are emphasized throughout the course. Students completing this course will take the Grade 8 mathematics SOL test.

Algebra I
Prerequisite: Accelerated Math 6/7
Credit: 1
SOL Test Algebra I incorporates concepts and skills necessary for students to pursue the study of rigorous advanced mathematics. The arithmetic properties of numbers are extended to include the development of the real number system. The fundamental concepts of equality, functions, multiple representations, probability, and data analysis guide the activities that allow students to enhance problem solving skills. Computers and graphing calculator technologies are incorporated into the curriculum in order to allow students opportunities to explore concepts, provide visual models to support the learning of algebraic concepts, and as powerful tools for solving and verifying solutions to equations and inequalities. Mathematical communication and reasoning emphasized throughout the course.

Life Science
Grade Level 620000
Honors 620200
 Life Science is the study of the living world and biological systems. Areas of study include cellular organization and the classification of organisms; the dynamic relationships among organisms, populations, communities, and ecosystems; and change as a result of the transmission of genetic information from generation to generation. Inquiry skills at this level include organization and mathematical analysis of data, manipulation of variables in experimentation, and identifying sources of experimental error.

The Life Science course continues to focus on student growth in understanding the nature of science by defining the idea that explanations of nature are developed and tested using observation, experimentation, models, evidence, and systematic processes. The nature of science includes the concepts that scientific explanations are based on logical thinking; are subject to rules of evidence; are open to rational critique; and are subject to refinement and change with the addition of new scientific evidence.

U.S. History, 1865 to Present
Grade Level 720000
Honors 720200
 Today you can send a text message to a friend in California in the amount of time it takes to turn on a light switch. If your great-grandparents wanted to send a written message to their friends in California when they were teenagers, it would have taken days for the mail train to deliver a paper letter. How has our country changed so much since the days of your great-grandparents? In this course students will learn how the United States changed from a farming economy in 1865 to a highly technical information society in 2018. As students learn about the transformation of our country from the Industrial Age to the "Information Age," they will strengthen their abilities to:

- Read text for content information
- Read and compare primary sources
- Read for the "point of view" of a document
- Understand cause-effect relationships
- Think critically
- Understand diverse cultural backgrounds

- Write with structure and purpose
- Participate in class discussion
- Develop their memory for, and appropriate usage of, Social Science vocabulary
- Apply geographical terms and concepts
- Interpret famous historical speeches

As students build skills in the areas listed above, they will develop regular, independent thinking habits in U.S. History. This means they will become "historical thinkers"!

Health and Physical Education 7 420000
 Students are offered a variety of challenging activities with an emphasis on fitness for life. In middle school, health and physical education classes are offered every other day.

Students are exposed to instruction in anatomy and physiology, fitness planning, social development, and energy balance. In addition, a wide variety of activities including cooperative games, individual and dual sports, team sports, rhythmic activities, physical fitness testing, lifetime fitness, and recreational activities are offered. The 7th grade health curriculum expands upon previous instruction in diet and nutrition, stress and mental health, lifetime fitness and wellness, importance of sleep, heredity and illness, bullying, and the relationship of healthy body systems to overall wellness. Family Life Education (FLE) is also included in this course.

Family and Consumer Science 7 806700
One Semester
 Family and Consumer Science is a semester exploratory program, which provides a "hands-on" approach to the development of skills that are critical to everyday life.

Activities prepare students for taking on responsibilities at home and in their lives.

Students explore through a multi-media module approach, concepts and practice skills related to nutrition, laundry techniques, consumerism, personal grooming, money management, food preparation, career interests, environmental issues and many more.

Technology Education 7 801700
One Semester
 Technology Education is a semester class that enables students to become technologically literate. Reaching beyond basic computer systems and ideas, it incorporates and complements science, mathematics, and other disciplines. It answers the important question: "Why do we need to learn this?" This course gives students the opportunity to experience how the application of old, new, and emerging technologies affect their everyday lives.

After an orientation period, students select from an assortment of various technology modules that they would like to explore. In those modules, the approach to learning is self-directed, allowing the students to experience the most innovative and modern learning approaches in Technology Education with a hands-on exploratory philosophy.

Learning modules allow students to interact with robots, lasers, machines controlled by computers, and other high-tech equipment.

Keyboarding 7/8 **809709**
Grades: 7-8

Keyboarding 7/8 is designed for students new to LCPS in Grade 7 or 8 who would like to use the computer efficiently, successfully, and productively. Students learn and develop touch skills for entering alphabetic, numeric, and symbol information on a keyboard. New skills are strengthened and speed is increased throughout the semester when students use a word processing program to create reports, personal and business letters, journals, and charts. Students are also exposed to spreadsheet, database, drawing, and painting programs, which enhance creative and problem-solving skills learned in other classes.

Resource 7 **002000**

Students are assigned to a resource class every other day, occupying the same block as the selected music class.

During the class, students are able to take advantage of a variety of opportunities such as obtaining help from teachers, making up tests and assignments, selecting and participating in various enrichment and enhancement activities provided by the school, participating in school counseling classes such as study skills and time management, completing homework, researching topics and assignments, and participating in peer tutoring.

Spectrum 7 **015000**
Prerequisite: Students are found eligible through a multi-step screening process conducted by educational professionals in Loudoun County and are formally identified as gifted in terms of general intellectual ability.

The curriculum for 7th graders includes the following units:

- Business & Economics
- Technology & Engineering
- Communication & Culture
- Ethics & Perspectives

SOLs from various courses across the middle school curriculum are incorporated into instructional activities.

French I **340000**
Prerequisite: None **Credit: 1**

Students develop the ability to communicate about themselves and their immediate environment at the beginner-novice level, producing basic language structures in the French language. This communication is evidenced in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing.

German I **370000**
Prerequisite: None **Credit: 1**

Students develop the ability to communicate about themselves and their immediate environment in German at the beginner-novice level by producing basic language structures. This communication is evidenced in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing.

Latin I **350000**
Prerequisite: None **Credit: 1**

This course explores basic Latin grammar and vocabulary and develops the skills necessary to read elementary Latin texts. The linguistic nature of the course is supplemented by a general overview of Greco-Roman civilization, including history, daily life and mythology. English derivatives are emphasized to show the influence of Latin upon the English language and to contribute to the growth of each student's personal vocabulary.

Spanish for Fluent Speakers I **367000**
Prerequisite: Placement Test **Credit: 1**

Spanish for Fluent Speakers I is designed to meet the needs of students whose primary language is Spanish and who have minimal or no formal instruction in the language. While developing their current competencies in formal speaking and listening, students focus on the acquisition of comparable competencies in reading and writing.

Upon successful completion of the course, students may continue in the Spanish for Fluent Speakers sequence.

Spanish I **360000**
Prerequisite: None **Credit: 1**

Students develop the ability to communicate about themselves and their immediate environment in Spanish at the beginner-novice level, producing basic language structures. This communication is evidenced in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing.

Art 7 **201700**

Art 7 is a full-year course that infuses art history, art criticism, and aesthetic critiques.

This course is designed to provide students with the opportunity to continue to develop a foundation of varied art skills, techniques, concepts and ideas beyond what is learned in the 6th grade program. Learning experiences will be connected to the real world, allowing students to understand how art relates to everything around us.

Students will continue to discuss and write about their art work and that of other artists. Also, students will establish a continuing art portfolio.

Band 7 **231000**
Prerequisite: Successful completion of Band 6 or equivalent study and experience.

Students enrolled in this class will continue learning and developing the fundamental skills of playing a band instrument with an increased emphasis on ensemble performances. Students provide their own instruments.

Students are expected to practice daily and participate in concerts, festivals, and rehearsals outside school hours. Instruments include: Percussion, clarinet, trumpet, flute/oboe, low brass, and saxophone.

Chorus 7 **236000**

This class is open to all students with a strong desire to sing and requires no audition. Students will apply the basics of proper singing techniques while performing a variety of styles of unison, two- and three-part choral music. Music reading skills are emphasized in this class and students will develop choral literacy by singing literature that is sacred and secular. Students are expected to attend several concerts and rehearsals held after school hours.

Guitar 7 **208000**

7th Grade Guitar is open to all students. The nylon-stringed classical guitar is used to introduce students to proper guitar technique, sitting position, standard music notation, tablature, chord charts, music theory and history, and solo and ensemble playing in a variety of musical styles. Care and proper maintenance of the instrument is also emphasized.

Participation in 7th Grade Guitar Level 1 class may require a graded, after-school performance with rehearsals.

Strings 7 **207100**
Prerequisite: Successful completion of Strings 6 or equivalent study and experience

This is a full-year elective which provides instruction for violin, viola, cello, or bass students. Students enrolled in this class will continue to develop fundamental performance skills introduced in Strings 6 with an increased focus on ensemble playing. Students are required to practice daily outside school and to participate in concerts and rehearsals after school hours. Students will provide their own instruments.

Grade 8 – Course Descriptions

English 8
Grade Level **120000**
Honors **120200**

SOL Test In Grade 8, interviewing techniques are the distinct focus of 8th grade oral language skills. Reading instruction emphasizes the ability to compare and contrast authors' styles, and to analyze an author's credentials, viewpoint, and impact. Students continue to grow as writers in their development of work in multiple genres by practicing the use of conjunctions and transition words and by using the comparative and superlative degrees of adverbs. Students develop vocabulary through their study of analogies and other forms of figurative speech.

Communication Studies **115400**
Entire Year

This course introduces students to the basic principles of human communication, including interpersonal and small group, intercultural, and mediated (mass or electronic) communication and public speaking. Units of study focus on the communication process, qualities of competent communication, and the role of communication in developing relationships in a democracy. Emphasis will be on developing critical thinking skills and helping students develop their media literacy. This course is project-based; students will exhibit their learning through activities in publication (newspaper, yearbook, literary magazine), broadcast (radio, television, film), and/or public speaking (debate, drama).

Mathematics 8 **530000**

SOL Test Mathematics 8 extends concepts and skills and prepares students for more abstract concepts in Algebra I. Problem solving, algebraic thinking, and proportional reasoning are embedded in the study of numbers, computation, measurement, and geometry as well as probability and statistics. Emerging technologies are incorporated into the curriculum in order to allow students opportunities to explore concepts. Mathematical communication and reasoning are emphasized throughout the course. Students completing this course will take the Grade 8 mathematics SOL test.

Algebra I **540000**

Prerequisite: Mathematics 7 or Mathematics 8 **Credit: 1**
SOL Test Algebra I incorporates concepts and skills necessary for students to pursue the study of rigorous advanced mathematics. The arithmetic properties of numbers are extended to include the development of the real number system. The fundamental concepts of equality, functions, multiple representations, probability, and data analysis guide the activities that allow students to enhance problem solving skills. Computers and graphing calculator technologies are incorporated into the curriculum in order to allow students opportunities to explore concepts, provide visual models to support the learning of algebraic concepts, and as powerful tools for solving and verifying solutions to equations and inequalities. Mathematical communication and reasoning are emphasized throughout the course.

Geometry **550000**
Prerequisite: Algebra I **Credit: 1**

SOL Test Geometry is the combined study of plane, solid, and coordinate geometric concepts which provides students with the skills necessary for the study of advanced mathematics. Investigations of lines, planes, congruence, similarity, areas, volumes, circles, and three-dimensional shapes are incorporated to provide a complete course of study. Formal and informal deductive reasoning skills are developed and applied to the construction of formal proofs. And emphasis on reasoning, problem solving, and proof is embedded in the course and includes two-column proofs, paragraph proofs, and coordinate proofs. Computers and graphing calculator technologies are incorporated into the curriculum to allow students opportunities to explore concepts, engage in inquiry-based learning, provide visual

models to support the learning of geometric concepts, and as powerful tools for solving and verifying solutions to equations and inequalities. Mathematical communication and reasoning are emphasized throughout the course.

Physical Science

Grade Level 630000

Honors 630200

SOL Test Physical Science is the study of matter and the characteristics of energy. Areas of study include atomic structure, the organization and use of the periodic table, physical and chemical changes, forms of energy and energy transformations, heat and heat transfer, sound and light and their technical applications, principles and applications of work, force, and motion, magnetism, and principles of electricity.

The Physical Science course continues to focus on student growth in understanding the nature of science by defining the idea that explanations of nature are developed and tested using observation, experimentation models, evidence, and systematic processes.

The nature of science includes the concepts that scientific explanations are based on logical thinking, are subject to rules of evidence, are open to rational critique, and are subject to refinement and change with the addition of new scientific evidence.

Civics and Economics

Grade Level 730000

Honors 730200

What rights do you have here in the United States? What rights do you have as a student? In this course, students will discover what they can do as a resident of our country, and what our country relies on them to do as they grow into adulthood. Students will also learn answers to economic questions, such as “Why does a new X-Box system go down in price as time passes?” As students learn about the important questions in their lives as residents and consumers in the United States, they will develop their abilities to:

- Read text for content information
- Read and compare primary sources
- Read for the “point of view” of a document and differentiate fact from opinion
- Understand cause-effect relationships and identify potential solutions to problems
- Think critically
- Understand diverse cultural backgrounds
- Write with structure and purpose
- Participate in class discussion
- Develop their memory for, and appropriate usage of, Social Science vocabulary
- Apply knowledge of geography to economic or political maps
- Interpret charts, graphs, political cartoons and maps

As students work to make the skills above part of their regular performance in Civics and Economics, they will be building their abilities to be active members of their community and smarter consumers in our economy!

Health and Physical Education 8

430000

Students are offered a variety of challenging activities with an emphasis on fitness for life. In middle school, health and physical education classes are offered every other day.

Students are exposed to instruction in anatomy and physiology, fitness planning, social development, and energy balance. In addition, a wide variety of activities including cooperative games, individual and dual sports, team sports, rhythmic activities, physical fitness testing, lifetime fitness, and recreational activities are taught. The 8th grade health curriculum expands on topics previously covered, and also includes lifetime fitness and wellness, alcohol, tobacco and other drugs, weight management, eating disorders, depression and suicide, SMART goals, and the impact of exercise and diet on the body. Family Life Education (FLE) is also included in this course.

Resource 8

001000

Full Year

During the class, students are able to take advantage of a variety of opportunities such as obtaining help from teachers, making up tests and assignments, selecting and participating in various enrichment and enhancement activities provided by the school, participating in school counseling classes such as study skills and time management, completing homework, researching topics and assignments, and participating in peer tutoring.

Spectrum 8

010700

Prerequisite: Students are found eligible through a multi-step screening process conducted by educational professionals in Loudoun County and are formally identified as gifted in terms of general intellectual ability.

The curriculum for 7th graders includes the following units:

- Business & Economics
- Technology & Engineering
- Communication & Culture
- Ethics & Perspectives

SOLs from various courses across the middle school curriculum are incorporated into instructional activities.

French I

340000

Prerequisite: None

Credit: 1

Students develop the ability to communicate about themselves and their immediate environment at the beginner-novice level, producing basic language structures in the French language. This communication is evidenced in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing.

French II

342000

Prerequisite: French I

Credit: 1

Students continue to develop proficiency in French at the intermediate-novice level in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing. Students learn to function in real-life situations

using more complex sentences and language structures. They also read material on familiar topics and produce short writing samples.

German I **370000**
Prerequisite: None **Credit: 1**

Students develop the ability to communicate about themselves and their immediate environment in German at the beginner-novice level by producing basic language structures. This communication is evidenced in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing.

German II **372000**
Prerequisite: German I **Credit: 1**

Students continue to develop proficiency in German at the intermediate-novice level in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing. Students learn to function in real-life situations using more complex sentences and language structures. They also read material on familiar topics and produce short writing samples.

Latin I **350000**
Prerequisite: None **Credit: 1**

This course explores basic Latin grammar and vocabulary and develops the skills necessary to read elementary Latin texts. The linguistic nature of the course is supplemented by a general overview of Greco-Roman civilization, including history, daily life and mythology. English derivatives are emphasized to show the influence of Latin upon the English language and to contribute to the growth of each student's personal vocabulary.

Latin II **352000**
Prerequisite: Latin I **Credit: 1**

Students review material from Latin I, learn intermediate grammar and vocabulary, and continue to develop skills necessary to read Latin texts. They expand their understanding of Greco-Roman civilization and English derivatives.

Spanish for Fluent Speakers I **367000**
Prerequisite: Placement Test **Credit: 1**

Spanish for Fluent Speakers I is designed to meet the needs of students whose primary language is Spanish and who have minimal or no formal instruction in the language. While developing their current competencies in formal speaking and listening, students focus on the acquisition of comparable competencies in reading and writing. Upon successful completion of the course, students may continue in the Spanish for Fluent Speakers sequence.

Spanish for Fluent Speakers II **367300**
Prerequisite: Spanish for Fluent Speakers I or Placement Test

Spanish for Fluent Speakers II is designed to increase proficiency in reading and writing of students whose primary language is Spanish. Major grammar points are reviewed and finer points of grammar are studied, placing emphasis on style and structural accuracy.

Comprehension and communication skills are refined through the reading and discussion of selections written by classic and modern authors in a variety of genres. Upon successful completion of this course, students may continue in the Spanish for Fluent Speakers series.

Spanish I **360000**
Prerequisite: None **Credit: 1**

Students develop the ability to communicate about themselves and their immediate environment in Spanish at the beginner-novice level, producing basic language structures. This communication is evidenced in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing.

Spanish II **362000**
Prerequisite: Spanish I **Credit: 1**

Students continue to develop proficiency in Spanish at the intermediate-novice level in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing. Students learn to function in real-life situations using more complex sentences and language structures. They also read material on familiar topics and produce short writing samples.

Art 8
One Semester **202700**
Full Year **202000**

Art is an elective course, which can be taken for one semester or a full year. 8th grade art infuses art production, art history, art criticism, and aesthetic critiques. Students engage in the process of creating, presenting, responding, and connecting with their art and the work of others. The course is designed to provide students with the opportunity to hone technical skills, develop their own personal vision and ideas while experiencing more depth within a broad range of media. Students continue to develop their art portfolios to communicate the creative process.

Art 8 Three-Dimensional Design **203000**

This course is designed to allow 8th grade art students the opportunity to explore three-dimensional art through the creative process using the elements and principles of design. Students will initiate and develop innovative ideas as they explore multi-media forms while applying depth, space, volume, and surface in an integrative way. Various experiences will provide students with hands-on creative challenges to discover sculpture, architecture, ceramics, and assemblage. Collaborative experiences will allow students unique opportunities to possibly create a 3D installation for the school and/or community. Art students will develop a continuing 3D Design portfolio.

Chorus 8 **237000**
Prerequisite: Successful completion of Chorus 7 recommended, not required

Chorus 8 is a performance-oriented class. Sight Singing skills are stressed as well as an emphasis on proper vocal techniques. Students will develop choral literacy by singing literature that is sacred and secular.

Students are expected to participate in concerts, festivals, and rehearsals held outside school hours.

Band 8 232000
Prerequisite: Successful completion of Band 7 or equivalent study and experience

Band 8 provides students the opportunity to continue to build their musical skills in preparation for performance at high school level. There is a continued emphasis on development of performance techniques, sight reading skills, ensemble playing, and a more difficult and varied repertoire.

Students are expected to practice daily and to participate in concerts, festivals, and rehearsals held outside school hours.

Strings 8 207003
Prerequisite: Successful completion of Strings 7 or equivalent study and experience

Strings 8 provides students the opportunity to continue to build their musical skills in preparation for performance at the high school level. There is a continued emphasis on performance techniques, sight reading skills, ensemble playing, and a more difficult and varied repertoire.

Students are required to practice daily and to participate in concerts, festivals, and rehearsals held outside school hours. Students will provide their own instruments.

Guitar 8 – Level 1 210000

8th Grade guitar – Level 1 is open to all students. The nylon-stringed classical guitar is used to introduce students to proper guitar techniques, sitting position, standard music notation, tablature, chord charts, music theory and history, and solo and ensemble playing in a variety of musical styles. Care and maintenance of the instrument are emphasized as well.

Participation in this class may require a graded, after-school performance with rehearsals.

Guitar 8 – Level 2 209000
Prerequisite: Successful completion of Guitar 7 or equivalent study and experience

This course begins with a review of skills and concepts introduced in 7th Grade Guitar. Greater emphasis is placed on elements of guitar technique including scales, arpeggios, slurs, stretches, and the establishment of a regular practice routine. The nylon-stringed classical guitar is used.

Students perform increasingly complex ensemble and solo repertoire. Participating in 8th Grade Guitar – Level 2 may require graded, after-school performances with rehearsals.

AVID MS 096000
Available at JLS, SMM, SRM and STM Only

This course is the foundational component of the AVID College Readiness System. This course emphasizes communication skills, educational self-advocacy, study skills and physical organization within agenda/planner, organizational tools, time management, goal setting, and note-taking strategies. These skills are practiced through writing to learn, inquiry, collaboration, organization, and reading to learn activities in all content areas.

Reading Strategies Workshop Grade 8 105600
Prerequisite: Schools identify students eligible for this program

This course is for students whose reading performance indicates a need to strengthen basic reading skills and strategies, as well as to help students to prepare for the SOL tests. Instruction will focus on phonics, fluency, comprehension, critical thinking, vocabulary, reading engagement, viewing, and test-taking. It will be differentiated according to students' needs. The course will use materials that will assist students with reading in other courses.

Family and Consumer Science 8 807000

Family and Consumer Science 8 is an elective course that can be taken for a full year. The focus is on improving self-identity, sharpening communication and social skills, increasing academic achievement, managing resources, and becoming oriented to the world of work.

Through a practical problem-solving approach students learn to critically examine concerns, seek solutions, and solve problems in caring ways. Various concepts explored in Family and Consumer Science 7 will be expanded for in-depth study. Leadership skills are integrated in the curriculum through FCCLA (Family, Career, and Community Leaders of America).

Lab Fee: \$15.00

Technology Education 8 802000

Technology Education is an elective course which can be taken for a full year. It is a comprehensive class using a multimedia and modular technology education approach. Students will experiment, design, invent, create, build, test, and analyze while exploring 14 different technology areas.

This course helps students understand how knowledge, tools and resources work in technological systems and benefit society. By simulating systems and assessing their impacts and influences on people, students gain insight into how to approach the problems and opportunities of the technological world.

Lab Fee: \$15.00

Technology of Robotic Design 803000
Grade(s): 8 Credit: 1

Students engage in the study of computers and microprocessors and their applications to manufacturing, transportation, and communication systems. Topics include computer equipment and operating systems, robotics, programming, control systems. And social/cultural impact of these technologies. Problem-solving activities challenge students to design, program, and interface devices with computer systems. Learning activities include robotics, computer-aided design, computer-aided manufacturing and design, and control of electromechanical devices.

Keyboarding 7/8 809709
Grades: 7-8

Keyboarding 7/8 is designed for students new to LCPS in Grade 7 or 8 who would like to use the computer efficiently, successfully, and productively. Students learn and develop touch skills for entering alphabetic, numeric, and symbol information on a keyboard. New skills are strengthened and speed is increased throughout the

semester when students use a word processing program to create reports, personal and business letters, journals, and charts. Students are also exposed to spreadsheet, database, drawing, and painting programs, which enhance creative and problem-solving skills learned in other classes.

English Learners

Newcomer English

(Entering and Beginning Level)

Grade 6	100011
Grade 7	102011
Grade 8	120011

(Proficiency Level 1.0 – 1.9) EL students learn English vocabulary, grammar, and sentence structure to assist them in the development of academic, cultural, and life skills. Students will develop their literacy skills through a variety of reading and writing activities while exploring various text types including fiction and non-fiction. All four language domains – listening, speaking, reading, and writing – are incorporated in order to support students’ acquisition of academic English.

EL Intermediate English

(Developing Level)

Grade 6	100012
Grade 7	102012
Grade 8	120012

Students at this level (Proficiency Level 2.0 – 3.0) will study academic vocabulary and reading strategies that will prepare them for content area classes. Students will continue to practice their oral, reading, and writing English language skills. They will enjoy reading and writing about topics of interest to them. Short novels and computer projects give students an opportunity to learn English and gain knowledge about U.S. education and American culture.

Newcomer Science Concepts

(Beginning and Developing Levels)

Grade 6	610010
Grade 7	620010
Grade 8	630010

In this course, EL students (Proficiency Level 1.0 – 1.9) learn the language of science along with key concepts of the grade-level science curricula, including general science theory, earth science, and biology. The Newcomer EL Science Concepts course can be taken concurrently with a grade-level science course to provide additional support for ELs. This course is most appropriate for students at low levels of English proficiency who possess limited background in science and/or have had limited or interrupted prior schooling.

Newcomer EL Social Science Concepts Grades 6-8

700010

In this course, Newcomer EL students (Proficiency Level 1.0 – 1.9) learn the language of social science along with key concepts of the grade-level social science curricula, including World History and United States and Virginia History. The EL Social Science Concepts course can be taken concurrently with a grade-level social science

course to provide additional support for ELs. This course is most appropriate for students at low levels of English proficiency who possess limited background in social science and/or have had limited or interrupted prior schooling.

EL U.S. History/Geography Concepts I, Grade 6 710010

This course for EL students (Proficiency Level 1.5 – 2.5) focuses on American History from the Era of Exploration to the Civil War. The course includes geography, history, civics, and culture. Students enjoy learning about interesting topics such as landforms, colonies, westward expansion, and inventions. Students will learn English using social science topics to read, write, and enter into discussions about U.S. History. Students use their English skills to create interesting projects. Reading strategies and the vocabulary of social science are taught to prepare students for success later in Social Science classes.

EL U.S. History Concepts II, Grade 7 720010

In this course for EL students (Proficiency Level 1.5 – 2.5), the study of U.S. history continues from the end of the Civil War and the Era of Reconstruction to the 21st Century. Topics in the course include Reconstruction, Industrialization, The World Wars, and 21st Century social changes. Students continue to learn English using social science topics to read, write, and enter into discussions about U.S. history. There are many opportunities to use library and computer skills to create exciting projects and presentations. Reading strategies and the vocabulary of social science are taught to prepare students for success as they transition into Social Science classes.

EL Civics and Economics Concepts, Grade 8 730010

In this course (Proficiency Level 1.5 – 2.5), students learn about U.S. Government, politics in the U.S., and citizens’ responsibilities. The course includes topics such as the U.S. Constitution, political parties, voting rights, the branches of government, and economic systems. ELs study the vocabulary of civics and economics and are able to use their new vocabulary in the many interesting projects and discussions offered in this class. Students learn about the U.S. Government and improve their academic reading and writing skills.

EL Fast Math 530010

FAST Math (Focus on Achieving Standards in Teaching Mathematics) is a mathematics program for non-English speaking students who need additional help in mathematics. Students learn the vocabulary of mathematics and are able to build mathematics skills needed for success in grade-level mathematics classes.

The Entry Assessment Mathematics Evaluation (EAME) is given at the beginning of the course so that students can receive mathematics instruction based on their needs. Students typically benefit from one year of FAST Math and are moved into grade level mathematics classes when they have mastered the mathematics concepts that will allow them to be successful.

High School

Career and Technical Education

Business and Information Technology

The Future Business Leaders of America (FBLA) is the cocurricular career and technical education student organization for all individuals enrolled in Business and Information Technology courses. The activities of FBLA are an integral part of the business program and are designed to enhance the Business and Information Technology course offerings.

Industry Certifications: The Business and Information Technology curriculum offers students the following industry certifications: Microsoft Office Specialist in Word, Microsoft Office Specialist Excel, Microsoft Office Specialist PowerPoint, Microsoft Office Specialist Access, and W!se Financial Literacy.

Family and Consumer Sciences

The Family, Career and Community Leaders of America (FCCLA) is the cocurricular career and technical education student organization for all individuals enrolled in Family and Consumer Sciences courses, with the exception of Teacher Cadet.

Educators Rising is the cocurricular career and technical education student organization for all individuals enrolled in Teacher Cadet.

The activities of FCCLA and Educators Rising are an integral part of the Family and Consumer Sciences program and are designed to enhance the course offerings.

Industry Certifications: The Family and Consumer Sciences curriculum offers students the following certifications: AAFCS: Broad Field Family and Consumer Sciences Examination; AAFCS: Early Childhood Education Examination; and AAFCS: Education Fundamentals Examination.

Marketing Education

The Distributive Education Clubs of America (DECA) is the cocurricular career and technical education student organization for all individuals enrolled in Marketing courses. The activities of DECA are an integral part of the business program and are designed to enhance the Marketing course offerings.

Industry Certifications: The Marketing curriculum offers students the following certifications: NRF Customer Service and Sales.

Technology and Engineering Education

The Technology Student Association (TSA) is the cocurricular career and technical education student organization for all individuals enrolled in Technology Education courses. The activities of TSA are an integral part of the business program and are designed to enhance the Technology Education course offerings.

Industry Certifications: The Technology Education curriculum offers students the following certifications: Autodesk.

Business and Information Technology

Accounting **830000**
Grade(s): 10-12 **Credit: 1**
Prerequisite: None

In this course, students study the basic principles, concepts, and practices of the accounting cycle for a service business and a merchandising business. Topics covered include analyzing transactions, journalizing and posting entries, preparing payroll records and financial statements, and managing cash control systems. Business ethics and professional conduct are emphasized. Students learn fundamental accounting procedures, using both manual and electronic systems.

This course counts as an elective credit.

Advanced Accounting **831000**
Grades(s): 11-12 **Credit: 1**
Prerequisite: Accounting

This advanced course allows students to gain knowledge of advanced accounting principles, procedures, and techniques used to solve business problems and to make financial decisions. Students use accounting and spreadsheet software to analyze, synthesize, evaluate, and interpret business financial data. Students work in a technology-integrated environment using authentic workplace industry scenarios that reflect current industry trends and standards. Upon completion, students should be able to demonstrate an understanding of the principles of decision making, problem solving, and critical thinking, and apply them to both personal and business financial situations.

This course counts as an elective credit.

Advanced Keyboarding **829700**
Grade(s): 9-12 **Credit: 0.5**
Prerequisite: Keyboarding or Keyboarding Proficiency

This advanced course is designed for secondary school students to develop and enhance touch skills for entering alphabetic, numeric, and symbol information on a keyboard. Students compose and produce a variety of personal, educational, and professional documents.

This course counts as an elective credit.

Business Law **835700**
Grade(s): 10-12 **Credit: 0.5**
Prerequisite: None

Students examine the foundations of the American legal system and learn the rights and responsibilities of citizens. Students gain practical knowledge and life skills by exploring economic and social concepts related to laws governing business and individuals. Focus areas include contracts, consumer protection, criminal law, tort law, international law, family/domestic law, employment law, and careers in the legal profession.

This course counts as an elective credit.

Business Management 836700
Grade(s): 10-12 Credit: 0.5
Prerequisite: None

Students study basic management concepts and leadership styles as they explore business ownership, planning, operations, marketing, finance, economics, communications, the global marketplace, and human relations. Quality concepts, project management, problem solving, and ethical decision-making are an integral part of the course. Student leadership skills may be enhanced by participation in school-based job shadowing, internships, and/or the Future Business Leaders of America (FBLA).

This course counts as an elective credit.

Computer Information Systems 828001
Grade(s): 9-12 Credit: 1
Prerequisite: Keyboarding or Keyboard Proficiency

Computer Information Systems provides students with opportunities to develop professional level skills in a project-oriented approach through the use of the Microsoft Office software package. Students apply problem-solving skills to real-life situations through word processing, spreadsheets, databases, multimedia presentations, and integrated software activities. Students work individually and in groups to explore computer concepts, operating systems, networks, telecommunications, and emerging technologies. Students may also become eligible to test for a core level of MOS certification.

This course counts as an elective credit.

Advanced Computer Information Systems 828002
Grade(s): 10-12 Credit: 1
Prerequisite: Computer Information Systems

This advanced course provides students with basic comprehension of the Microsoft Office software package and an opportunity to refine their skills through a variety of project and research activities. Students apply problem-solving skills to real-life situations through advanced integrated software applications, including printed, electronic, and web publications. Students work individually and in groups to explore advanced computer maintenance activities, website development, programming, networking, emerging technology, and employability skills.

This course counts as an elective credit.

Design, Multimedia and Web Technologies 839001
Grade(s): 10-12 Credit: 1
Prerequisite: None

Students develop proficiency in creating desktop publications, multimedia presentations/projects, and websites using industry standard application software. Students incorporate principles of layout and design in completing publications and projects. Students design portfolios that may include business cards, newsletters, mini-pages, web pages, multimedia presentations/projects, calendars, and graphics.

This course counts as an elective credit.

Advanced Design, Multimedia and Web Technologies 839002
Grade(s): 11-12 Credit: 1
Prerequisite: Design, Multimedia, and Web Technologies

This advanced course provides project-based instruction to enhance the design and multimedia skills of students. Topics covered include designing, creating, and publishing websites; complying with laws and professional ethics; and relating design and multimedia application to business and industry standards.

This course counts as an elective credit.

Economics and Personal Finance
Virtual Loudoun 823V00
Grade(s): 9-12 Credit: 1
Prerequisite: None

Students will learn how to navigate the financial decisions they must face and to make informed decisions related to career exploration, budgeting, banking, credit, insurance, spending, taxes, saving, investing, buying/leasing a vehicle, living independently, and inheritance. Development of financial literacy skills and an understanding of economic principles provide the basis for responsible citizenship and career success. In addition to developing personal finance skills, students in the 36-week online course also study basic occupational skills and concepts in preparation for entry-level employment in the field of finance.

This course will be taught during the regular school day with an assigned teacher-facilitator. This course incorporates all economic and financial literacy objectives included in the *Code of Virginia* §22.1-200-03B. This 36-week course is a graduation requirement.

This course counts as an elective credit.

Introduction to Business & Marketing 821000
Grade(s): 9-11 Credit: 1
Prerequisite: None

This entry-level course is offered for all students and recommended as an introduction to the career preparation program in Business & Marketing Education. Students explore the role of business and marketing in the free enterprise system and the global economy and apply decision-making skills as consumers, employees, and citizens. Communication and interpersonal skills are developed through various activities.

This course counts as an elective credit.

Introduction to Cybersecurity 894101
Grade(s): 9-11 Credit: 1
Prerequisite: None

Cybersecurity affects every individual, organization, and nation. This course focuses on the evolving and all-pervasive technological environment with an emphasis on securing personal, organizational, and national information. Students will be introduced to the principles of cybersecurity, explore emerging technologies, examine threats and protective measures, and investigate the diverse high-skill, high-wage, and high-demand career opportunities in the field of cybersecurity.

This course counts as an elective credit.

Personal Finance 825000
Grade(s): 10-12 Credit: 0.5
Prerequisite: None

Students learn how to navigate the financial decisions they must face and to make informed decisions related to career exploration, budgeting, banking, credit, insurance, spending, taxes, saving, investing, buying/leasing a vehicle, living independently, and inheritance. Development of financial literacy skills and an understanding of economic principles provide the basis for responsible citizenship and career success. In addition to developing personal finance skills, students also study basic occupational skills and concepts in preparation for entry-level employment in the field of finance. The course incorporates all economic and financial literacy objectives included in the Code of Virginia §22.1-200-03B. This semester course is a graduation requirement beginning with the class of 2015.

This course counts as an elective credit.

Family and Consumer Sciences

Introduction to Early Childhood Education 844003
Grade(s): 9-11 Credit: 1
Prerequisite: None

Students focus on careers related to the early childhood field through hands-on experiences, including an overview of principles of child growth and development; appreciation of diversity; engaging learning experiences for children; principles of appropriate and effective guidance; healthy and safe environments; and development of self-concepts and building self-efficacy.

This course counts as an elective credit.

Early Childhood Education I 844100
Grade(s): 10-11 Credit: 2
Prerequisite: Human Development; TB test

This is a hybrid course that involves traditional face-to-face learning and virtual/online learning through VISION. Students prepare to be primary providers of home-, family-, or institution-based child care services by focusing on the planning, organizing, and conducting of meaningful play and learning activities; child monitoring and supervision; record keeping; and referral procedures. Critical thinking, practical problem solving and entrepreneurship opportunities within the field of early childhood education are emphasized. Practical experiences, (e.g., on-site lab, local daycare centers, elementary schools, other institutions) under the supervision of the instructor are required. Students also prepare for continuing education leading to careers in early childhood fields (e.g., medical social services and education). Work-based learning methods of instruction are encouraged for this course. Students combine classroom instruction and supervised on-the-job training in an approved position with continuing supervision throughout the school year.

Proof of tuberculosis (TB) screening is required. Students are responsible for getting TB screening prior to the start of the school year.
<https://law.lis.virginia.gov/vacode/title22.1/chapter15/section22.1-300/>

Early Childhood Education Seminar I DE 844300/844306
Grade(s): 10-11 Credit: 2
Prerequisite: Human Development; TB test

This is a hybrid course that involves traditional face-to-face learning and virtual/online learning through VISION. This course presents early childhood development through activities and experiences in early childhood, prekindergarten, kindergarten, and primary programs. Students investigate classroom organization and procedures, and use of classroom time and materials, approaches to education for young children, professionalism, and curricular procedures. Students will describe and illustrate theoretical and historical bases of early childhood education, classify and interpret developmental characteristics of young children from infancy through age eight, classify and critique characteristics of developmentally appropriate materials and activities, identify and explain basic health, safety, and nutritional needs of children and apply appropriate learning standards as they relate to early childhood education. Students gain real-world experience in an assigned early childhood education facility. Proof of tuberculosis (TB) screening is required. Students are responsible for getting TB screening prior to the start of the school year.
<https://law.lis.virginia.gov/vacode/title22.1/chapter15/section22.1-300/>

This course counts as an elective credit. Upon successful completion of this course, students can earn 6 college credits from Northern Virginia Community College.

Early Childhood Education II 844200
Grade(s): 11-12 Credit: 2
Prerequisite: Early Childhood Education I; TB test

This is a hybrid course that involves traditional face-to-face learning and virtual/online learning through VISION. Students focus on occupational skills needed by personnel employed in early childhood related fields such as education, medical/health care, social services, counseling, psychology, and entrepreneurship. Work-based learning experiences (e.g., on-site lab, local daycare centers, elementary schools, other institutions) under the supervision of the instructor are required. Critical thinking, practical problem solving and entrepreneurship opportunities within the field of early childhood education are emphasized. Work-based learning methods of instruction are encouraged for this course. Students combine classroom instruction and supervised on-the-job training in an approved position with continuing supervision throughout the school year.

Proof of tuberculosis (TB) screening is required. Students are responsible for getting TB screening prior to the start of the school year.
<https://law.lis.virginia.gov/vacode/title22.1/chapter15/section22.1-300/>

This course counts as an elective credit.

Fashion Design & Merchandising 846700
Grade(s): 9-12 Credit: 0.5
Prerequisite: None

Wardrobe planning, selection, color analysis, accessorizing, fashion design, and clothing maintenance are emphasized in the management of personal and family clothing. Fashion trends are analyzed. Based on their abilities and interests, students construct various fashion projects for which students must provide materials.

This course counts as an elective credit.

Fashion Careers I 846100
Grade(s): 10-11 Credit: 2
Prerequisite: Fashion Design & Merchandising

Students investigate career opportunities in apparel design, production, and care. Students study the business of fashion, including fabric technology, fashion design skills, and apparel-production techniques. Work-based learning opportunities for students to develop employability skills. Teachers emphasize skills in art, communication, mathematics, science and technology in this course.

This course counts as an elective credit.

Food Science and Dietetics 845200
Grade(s): 11-12 Credit: 1
Co-requisite: Chemistry

Through laboratory and other practical experiences, students will develop a deeper appreciation for the food system and the impact of science on the food and nutrition industries. Students will explore the food sources; the science and technology of food production and processing; and implications for individual and global health and wellness. Career opportunities are broad and include health care, dietetics, and food research, development, and manufacturing.

This course counts as an elective credit.

Gourmet Foods 845700
Grade(s): 9-12 Credit: 0.5
Gourmet Foods 845100
Grade(s): 9-12 Credit: 1
Prerequisite: None

The application of science concepts in biology, chemistry, and physics are important to the study of foods. Students learn the relationship of science to foods, use of technology, nutrition, wellness, sports nutrition, food safety, and sanitation, time and resource management, foods and cultural diversity, contemporary trends and issues, and the use of the My Plate guide. Hands-on activities in food preparation skills and techniques and in the actual planning, preparation, preservation, and serving of nutritious meals encourage the development of positive interdependence, individual accountability, social skills, and effective group functioning. Students use computers to analyze nutritional content of foods and to plan for special dietary needs.

This course counts as an elective credit.

Lab Fee: \$20.00

Human Development 846000
Grade(s): 9-12 Credit: 0.5
Prerequisite: None

Students enrolled in Human Development focus on analyzing parenting roles and responsibilities, ensuring a healthy start for mother and child, evaluating support systems that provide services for parents, and evaluating parenting practices that maximize human growth and development. Critical thinking, practical problem solving using case studies, and entrepreneurship opportunities within the area of parenting responsibilities and child development are emphasized. Teachers highlight the basic skills of mathematics, science, and technology when appropriate.

This course counts as an elective credit.

Independent Living 840700
Grade(s): 9-12 Credit: 0.5
Prerequisite: None

Whether students choose to enter the work force or continue their education after high school, they must acquire the life skills necessary to make the transition to independent living. Students become empowered to make responsible consumer choices by applying decision making, problem solving, and management processes; to see themselves in the roles of making and managing money; to calculate value for food, clothing, and housing dollars; and to apply the resources of time, materials, and technology for successful living.

This course counts as an elective credit.

Introduction to Culinary Arts 875101
Grade(s): 9-11 Credit: 1
Prerequisite: None

The Introduction to Culinary Arts curriculum provides students with opportunities to explore career options and entrepreneurial opportunities within the food service industry. Students investigate food safety and sanitation, explore culinary preparation foundations, practice basic culinary skills, explore diverse cuisine and service styles, investigate nutrition and menu development, and examine the economics of food. The curriculum places a strong emphasis on science and mathematics knowledge and skills.

This course counts as an elective credit.

Introduction to Housing & Interior Design 847700
Grade(s): 9-12 Credit: 0.5
Prerequisite: None

Students learn to evaluate and create plans for a pleasant living environment using their creativity, talent, and self-expression. Housing selection; development of floor plans; design of various living areas; the selection and construction of home furnishings, equipment, and accessories; and interior decorating fundamentals are covered. Students learn to use the computer to design the exterior and interior of a house as well as landscape design. Individual design projects may be required for which the students must provide materials.

This course counts as an elective credit.

Lab fee: \$5.00

Project Management 827700
Grade(s): 9-12 Credit: 0.5
Project Management 827000
Grade(s): 9-12 Credit: 1
Prerequisite: None

This course is designed to equip students with personal and group leadership skills. Course content includes units in principles of leadership, parliamentary law, speaking in public, developing effective communications and human relations skills, and developing positive public relations. School and community leadership opportunities are used to provide practical application of the course content.

This course counts as an elective credit.

Introduction to Teacher Cadet 844004
Grade(s): 9-10 Credit: 1
Prerequisite: None

This exploratory course fosters student interest, understanding, and appreciation of the teaching profession and allows students an introduction to careers in education. Students are taught to develop self-awareness, collaborate and communicate with peers, build positive learning environments, and discover learning differences of others. The curriculum is designed to help students set attainable goals in the Education and Training Career Cluster. Additional educational leadership opportunities are offered through the student organization, Educators Rising.

This course counts as an elective credit.

Teacher Cadet DE 844002
Grade(s): 12 Credit: 1
Prerequisite: 3.0 GPA, application process, essay, teacher recommendation, TB test

The Teacher Cade Program is designed to attract talented high school students into the teaching profession through a challenging introduction to teaching. The student who completes Teacher Cadet will receive 4 elective credits from Shenandoah University that could be transferable to other colleges or universities.

The program seeks to provide these students insight into the nature of teaching, the problems of schooling, and the critical issues affecting the quality of education in America's schools.

Students participate in field experiences in LCPS Grades K-12. Students work with classroom teachers at their chosen grade level of interest.

Proof of tuberculosis (TB) screening is required. Students are responsible for getting a TB screening done prior to the start of the school year.

This course counts as an elective credit. Upon successful completion of this course, students can earn 4 college credits from Shenandoah University.

Marketing

Introduction to Business & Marketing 821000
Grade(s): 9-11 Credit: 1
Prerequisite: None

This entry-level course is offered for all students and recommended as an introduction to the career preparation program in Business & Marketing Education. Students explore the role of business and marketing in the free enterprise system and the global economy and apply decision-making skills as consumers, employees, and citizens. Communication and interpersonal skills are developed through various activities.

This course counts as an elective credit.

Marketing Co-Op 822000
Grade(s): 11-12 Credit: 2
Marketing Non Co-Op 822100
Grade(s): 10-12 Credit: 1
Prerequisite: Screening conference with instructor

Providing instruction that enables students to hold and succeed in an entry-level job in marketing, the course combines classroom instruction with supervised on-the-job training in a local marketing business. In this year of the program students concentrate on developing competencies needed by marketing workers in the areas of human relations, communications, advertising, display, operations, sales, and product and service technology. The student is provided with a variety of learning methods including practical activities, simulations, computer activities, guest speakers, and role-playing. Co-op students are expected to stay employed throughout the school year in a teacher-approved marketing related job. DECA is an integral part of this course.

This course counts as an elective credit.

Advanced Marketing Co-Op 823000
Grade(s): 11-12 Credit: 2
Advanced Marketing Non Co-Op 823100
Grade(s): 11-12 Credit: 1
Prerequisite: Marketing Co-Op or Marketing Non Co-Op

Offering training in pre-management level skills and designed for the student who has a firm career interest in marketing, this course allows students to continue the arrangement of combining classroom instruction with supervised on-the-job training in a local marketing business. Instruction in this year of the program concentrates primarily on the development of competencies in the areas of sales promotion, merchandising, marketing research, and management. Entrepreneurship is an integral part of this class. The student is provided with a variety of learning methods including practical activities, simulations, computer activities, guest speakers, and role-playing. Co-op students are expected to stay employed throughout the school year in a teacher-approved marketing-related job. DECA is an integral part of this course.

This course counts as an elective credit.

Advanced Marketing Co-Op Seminar DE
Grade(s): 11-12
Advanced Marketing Non Co-Op Seminar DE
Grade(s): 11-12
Prerequisite: Marketing Co-Op or Marketing Non Co-Op

823001/823006
Credit: 2
823101/823106
Credit: 1

This course is designed to provide students with an overview of marketing principles and strategies applicable to a dynamic high-tech economy. Marketing activities are examined as part of the strategic planning process. How these activities interface with other major organizational functions will be analyzed. The issues of business planning, research and logistics, which confront the modern marketing manager, will be detailed. Critical thinking and technology will be emphasized as the student examines new and traditional methods of creating customer value and developing customer relationships using the Internet as one of the many tools available.

This course counts as an elective credit. Upon successful completion of this course, students can earn 6 college credits from Northern Virginia Community College.

Sports and Entertainment Marketing
Grade(s): 10-12
Prerequisite: Introduction to Business & Marketing, recommended

821100
Credit: 1

Sports, Entertainment & Recreation Marketing is a course designed for students with an interest in the sports, entertainment, and recreation industry. This unique and innovative program explores the following areas: an orientation and understanding of the sports, entertainment, and recreation industry; strategic planning; product licensing; dealing with agents and personal managers; examination of concessions and on-site merchandising; market analysis; investigating safety and security procedures; event marketing and execution; and the production of a culminating event and the analysis of the event. DECA is an integral part of this course.

This course counts as an elective credit.

Military Science

Naval Science I
Grade(s): 9-12
Prerequisite: Competitive application process

848000
Credit: 1

This introductory course to the NJROTC program is intended to stimulate enthusiasm for scholarship as a foundation for higher citizenship and leadership. The Junior Reserve Officer's Training Corps (JROTC) is a federal program sponsored by the United States Armed Forces in high schools across the United States. The objectives of the program are to develop good citizenship and patriotism; develop self-reliance, leadership, and responsiveness to constituted authority; improve the ability to communicate well both orally and in writing; develop an appreciation of the importance of physical fitness; increase a respect for the role of the United States Armed Forces in support of national objectives; and to develop a knowledge of basic military skills. Specific curriculum focus is on naval science studies and leadership opportunities.

This course counts as an elective credit.

Naval Science II
Grade(s): 10-12
Prerequisite: Naval Science I

849000
Credit: 1

This second-year course builds on the general introduction provided in Naval Science I to further develop the traits of citizenship and leadership in cadets, introduce cadets to technical areas of naval science, and engender a deeper awareness of the vital importance of the world oceans to the continued well-being of the United States. The course content includes ongoing instruction leadership theory, naval orientation and career planning, citizenship in the United States and other countries, Naval history from 1815 through 1930, Naval ships and shipboard evolutions, Naval weapons: gunnery, guided missiles and mines, Navigation fundamentals and rules of the road, small boat seamanship, meteorology and weather, and survival training and orienteering.

This course counts as an elective credit.

Naval Science III
Grade(s): 11-12
Prerequisite: Naval Science II

847000
Credit: 1

This third-year course builds on the general information covered in Naval Science I and II and further develops the traits of citizenship and leadership in cadets, introduces cadets to technical areas of naval science, and engenders a deeper awareness of the vital importance of the world oceans to the continued well-being of the United States. Students continue to develop their leadership skills through working as command and staff leaders. Additional communication skills are developed, including methods of instruction, preparation, and proper conduct of cadet-led classes. Human relations, group dynamics, orienteering, contemporary United States issues, and advanced military history studies are also included.

This course counts as an elective credit.

Naval Science IV
Grade(s): 12
Prerequisite: Naval Science III

845000
Credit: 1

This fourth-year course builds on the general information covered in Naval Science I, II, and III and develops leadership skills through working as command and staff leaders. Additional communication skills are developed, including methods of instruction, preparation, and proper conduct of cadet-led classes. Human relations, group dynamics, orienteering, contemporary United States issues, and advanced military history studies are also included.

This course counts as an elective credit.

Technology and Engineering Education

Aerospace Science I
Grade(s): 10-12
Prerequisite: None

810000
Credit: 1

Aerospace Science I is a course designed to introduce students to the technologies of aeronautics and space sciences. The course is a study of the interrelationship between aeronautics and space science. Students use a hands-on approach to study concepts including

aerodynamic principles, aircraft and spacecraft technologies, meteorology and space environments, commercial applications, administration, and historical perspectives. Field experiences expose students to career paths in the aerospace industry and governmental agencies.

This course counts as an elective credit.
Lab fee: \$20.00

Aerospace Science II **810500**
Grade(s): 11-12 **Credit: 1**
Prerequisite: Aerospace Science I

Aerospace Science II provides an advanced exploration of flight, space travel, and supporting technologies through a problem-solving method and practical application. Students explore concepts in aircraft operations; aircraft design, flight safety and maintenance; airport infrastructure; rocket technology; space systems; and living and working in the aerospace environment.

This course counts as an elective credit.
Lab fee: \$20.00

Materials and Processes **852000**
Grade(s): 9-12 **Credit: 1**
Prerequisite: None

Students focus on the industrial/technical materials and processes as they fabricate usable products and conduct experiments. Students explore and master multiple production materials including plastics, metals, woods, ceramics, and composites. Students explore the materials and the properties of each, investigate use of the materials in products, and experiment with the development of products using the materials. Students are expected to follow strict safety requirements when elements of instruction take place in the Technology Education production lab. Virginia's Workplace Readiness competencies are also emphasized.

This course counts as an elective credit.
Lab fee: \$20.00

Manufacturing Systems I **852400**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Materials and Processes

This course provides an orientation to careers in various fields of manufacturing. Emphasis will be placed on manufacturing systems, safety, materials, production, business concepts, and the manufacturing process. Students participate in individual and team activities to create products that demonstrate critical elements of manufacturing. Students are expected to follow strict safety requirements when elements of instruction take place in the Technology Education production lab.

This course counts as an elective credit.
Lab fee: \$20.00

Manufacturing Systems II **852800**
Grade(s): 11-12 **Credit: 1**
Prerequisite: Manufacturing Systems I

Students develop an in-depth understanding of automation and its applications in manufacturing. Activities center on flexible manufacturing processes and computer integrated manufacturing (CIM). Students work in teams to

solve complex interdisciplinary problems that stem from major systems in automated manufacturing. Students are expected to follow strict safety requirements when elements of instruction take place in the Technology Education production lab.

Production Systems **851000**
Grade(s): 12 **Credit: 1**
Prerequisite: Manufacturing Systems II

This course is designed to introduce students to the world of technology and design. Students explore the use of cutting-edge technology in production of goods. Economic and social implications are considered. Students move through the problem-solving process to plan an organization and production facility, design and produce a prototype, develop a marketing plan for the product, and evaluate potential success. Students are expected to follow strict safety requirements when elements of instruction take place in the Technology Education production lab. Virginia's Workplace Readiness competencies are also emphasized.

This course counts as an elective credit.
Lab fee: \$20.00

Technical Drawing and Design **853000**
Grade(s): 9-12 **Credit: 1**
Prerequisite: None

Technical Drawing and Design provides the student with the basic principles and theories underlying graphic representations, which are common to all areas of industrial work.

Learning units and required drawings emphasize the basic skills in computer assisted drawing (CADD) and related areas. Occupational information is also presented.

This course counts as an elective credit.

Architectural Drawing and Design **854000**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Technical Drawing and Design

This course is designed to give the college-bound student an opportunity to explore specific fields related to Computer Aided Drafting and Design (CADD). These areas are architectural, electrical, sheet metal, structural, topographical, and mechanical. The student then chooses areas of interest and pursues independent, in-depth studies.

This course counts as an elective credit.

Engineering Drawing and Design **853500**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Technical Drawing and Design

Students explore the engineering design process and use a graphic language for product design, technical illustration, assembly, patent, and structural drawings. They increase their understanding of drawing and the design process and techniques learned in the prerequisite course. Students use computers, calculators, and descriptive geometry and adhere to established standards to solve design problems.

This course counts as an elective credit.

Advanced Drawing and Design 854500
Grade(s): 11-12 Credit: 1
Prerequisite: Engineering Drawing & Design or Architectural Drawing and Design

This advanced course allows students to use a graphic language for product design and technical illustration. They increase their understanding of drawing techniques learned in the prerequisite illustration as well as increase their understanding of drawing techniques learned in the prerequisite courses. They research design-related fields while identifying the role of advanced drawing and design in manufacturing and construction industry processes. They apply the design process, analyze design solutions, reverse engineer products, create 3D solid models using CADD, construct physical models, and create multimedia presentations of finished designs. They complete a work portfolio based on a chosen graphic project.

This course counts as an elective credit.

Technology Foundations 856000
Grade(s): 9-12 Credit: 1
Prerequisite: None

Students acquire a foundation in technological material, energy, and information and apply processes associated with the technological thinker. Challenged by laboratory activities, students create new ideas and innovations, build systems, and analyze technological products to learn further how and why technology works. They work in groups to build and control systems using engineering design in the development of a technology. Technologies explored include biotechnology, communications, construction, manufacturing, power and energy, and transportation.

This course counts as an elective credit.

Technology Transfer 857000
Grade(s): 10-12 Credit: 1
Prerequisite: Technology Foundations

Students work with a variety of computers, materials, and systems to improve their skills and knowledge. Groups work together applying mathematics, science, and communication concepts on a project that combines systems such as production, energy, communication, transportation, biotechnology, and other technologies. Thematic activities engage students in community problems where they transfer the technological method to address recycling, space exploration, and housing.

This course counts as an elective credit.

Technology Assessment 858000
Grade(s): 11-12 Credit: 1
Prerequisite: Technology Transfer

Technology Assessment is offered as a capstone course for students in high school. Students use their knowledge and abilities in technology, mathematics, science, and other disciplines to analyze the impacts of technological devices and systems on the world. Students use information they acquire through activities and research to predict the future. They use computers and assessment activities to analyze products and systems to determine their possible impact. They design and present their newly created products or systems.

This course counts as an elective credit.

English

Students must earn four credits in English, including a survey of British literature and a survey of American literature, for both the Standard and Advanced Studies diplomas. Students in LCPS must take an English course each year of high school.

Near the end of English 11, students must take two Standards of Learning tests:

Reading

Writing

Students in all English classes receive instruction to prepare them for the SOL tests.

English high school courses provide instruction in oral language, reading and literature, writing and grammar, research, and vocabulary. Students practice whole-class and independent reading, and teachers provide skills for reading fiction and nonfiction. Students write for a variety of purposes and audiences and master a range of grammar and usage skills. Research instruction emphasizes the ability to analyze, synthesize, and evaluate information from a variety of sources, and it requires students to produce formal research papers. Vocabulary instruction helps to develop students' reading comprehension and their ability to express themselves orally and in writing in all grades, and it prepares students for PSAT, SAT, ACT, and SOL tests. Teachers focus on the recognition of word roots and affixes; use of context clues to understand unfamiliar words; distinctions between denotation and connotation; and a study of synonyms, antonyms, and homophones.

Academic courses challenge students to master rigorous standards while providing individualized support. **Honors courses** are offered in Grades 9, 10, and 11. While they focus on the same skills as academic courses, honors courses are distinguished by a more rigorous and inquiry-based study of literature and nonfiction texts. All year-long honors courses receive a weight of 0.5. They move at an accelerated pace, cover a greater breadth and depth of textual study, and require more independent work.

Advanced Placement and **Dual Enrollment** courses are offered at the higher grade levels and may allow students to earn college credit.

English 9	
Academic	140300
Honors	140200
Virtual Loudoun	140V00
Prerequisite: English 8	Credit: 1

In Grade 9 oral language instruction emphasizes dramatic reading of literary selections and planned oral presentations. The reading and literature component focuses on a study of fiction and nonfiction genres. Writing instruction develops skills in narrative, expository, and informational writing. Direct vocabulary instruction improves students' reading and writing fluency and prepares

them for the SOL, SAT, and ACT tests. Students produce documented research papers, using print electronic databases, and on-line sources.

English 10	
Academic	150300
Honors	150200
Virtual Loudoun	150V00
Prerequisite: English 9	Credit: 1

In Grade 10 oral language instruction emphasizes the participation in and the critique of small group learning activities. The reading and literature component includes a survey of British literature, especially the reading of poetry and drama; nonfiction reading focuses on the understanding and evaluation of consumer information such as labels, warranties, and contracts. Writing instruction pinpoints expository composition and the ability to critique professional and peer writing. Direct vocabulary instruction improves students' reading and writing fluency and prepares them for the SOL, SAT, and ACT tests. Students are taught to collect, organize, and present information in a documented research paper.

English 11	
Academic	160300
Honors	160200
Virtual Loudoun	160V00
Prerequisite: English 10	Credit: 1

2 SOL Tests In Grade 11 oral language instruction emphasizes the ability to give and to critique informative and persuasive presentations. The reading and literature component focuses on a survey of American literature and the ability to read and comprehend various kinds of manuals, business letters, newspapers, brochures, reports, catalogs, journals, speeches, biographies, and autobiographies. Writing instruction focuses on the ability to write persuasively, as well as on personal, professional, and informational correspondence. Direct vocabulary instruction improves students' reading and writing fluency and prepares them for the SOL, SAT, and ACT tests. In addition to research papers, students produce multi-media research reports.

AP English Language and Composition	160100
Grade(s): 11	Credit: 1
Prerequisite: English 10	

2 SOL Tests AP Language and Composition is recommended for students who want a challenging course that emphasizes the analysis of nonfiction. Students read a variety of works from several genres, time periods, and cultures, including a focus on texts by American authors. Varied and frequent composition assignments require close reading, rhetorical analysis, exposition of ideas, and the understanding of particular rhetorical forms and terms.

Students have the opportunity to take the AP Language and Composition exam in May with the possibility of earning college credit.

English 12	
Academic	170300
Virtual Loudoun	170V00
Prerequisite: English 11	Credit: 1

This course is divided into two distinct semesters of study, one focusing on a study of world literature and the other on writing.

Students read representative literature from many cultures, countries, and time periods to increase their understanding of literature and the people who produced it. Activities in this semester include oral and written analyses of readings, overviews of the society and history that relate to a particular selection, and evaluations of author's styles and themes.

In the other semester, students receive extensive writing practice in the expository, narrative, descriptive, and persuasive forms. The semester course begins with a review of elements of style and a study of paragraph development to prepare students for more extensive assignments that follow. Students practice composing skills through the writing of critical and creative essays, description, narrative, persuasion, and exposition.

English 12 DE	170001/170006
Prerequisite: English 11 or English Language and Composition Advanced Placement	Credit: 1

LCPS provides students the opportunity to earn college credit while fulfilling their English 12 course requirement. English 12 Dual Enrollment (DE) is a rigorous, college-level course that focuses on composition, argumentation, and critical reading skills. It is a fast-paced course that covers not only the Virginia English 12 SOL, but also two full semesters of college-level composition and reading.

English 12 DE is taught by LCPS teachers who are also adjunct faculty members at participating colleges. Upon successful completion of this full-year course, students will receive 6 college credits from Northern Virginia Community College.

AP English Literature and Composition	170100
Grade(s): 12	Credit: 1
Prerequisite: English 11 or English Language and Composition Advanced Placement	

AP Literature and Composition is recommended for students who want a challenging course that emphasizes the study and practice of writing and the analysis of literature (prose, fiction, poetry, and drama). Students read a variety of works from several genres and cultures. Varied and frequent composition assignments require close reading, literary analysis, exposition of ideas, and the understanding of particular literary forms and terms.

Students have the opportunity to take the AP Literature and Composition exam in May with the possibility of earning college credit.

English Electives

Creative Writing 160700
Grade(s): 9-12 Credit: 0.5
Prerequisite: None

Creative Writing is a one-semester English elective that provides a supportive environment in which students write prose, poetry, and drama and read examples of various genres. This course focuses on the study of the fundamental elements of creative writing, including developing strategies for writing creatively, practicing aspects of narrative writing, using poetic devices, and developing voice. Students maintain a writing portfolio, collaborate to critique and improve their work for final review, and seek opportunities for publishing their writing.

Fundamentals of Writing 160702
Grade(s): 9-12 Credit: 0.5
Prerequisite: None

Fundamentals of Writing is a writing refresher course for writers of all ability levels who would like to develop their skills. This one-semester course provides a supportive environment in which students engage in various activities to improve their writing skills, particularly for expository and technical writing. This course focuses on the study of the fundamental elements of writing, including strategies for writing and aspects of nonfiction writing. Students maintain a writing portfolio and collaborate to critique and improve their work for final review.

Etymology 185700
Grade(s): 9-12 Credit: 0.5
Prerequisite: None

Etymology is the study of language families, root words, prefixes, suffixes, semantic changes, and word elements. Students study the meanings and derivations of English words to broaden their knowledge and command of the English language. This course is particularly useful for students preparing to take the SAT and ACT.

21st Century Literacy Strategies I 192000
Grade(s): 9-12 Credit: 1 per year
21st Century Literacy Strategies I 192700
Grade(s): 9-12 Credit: 0.5 per semester,
 students may take two semesters.

Prerequisite: None

This course is designed for students who will benefit from specific instruction in reading secondary content material and strengthening reading and writing skills and strategies. Instruction supports literacy development with instruction in skills related to the alphabetic principle, fluency, vocabulary, reading comprehension, writing, viewing, critical thinking, and preparation for SOL exams. Teaching strategies increase motivation by making reading relevant to students' lives.

21st Century Literacy Strategies II 193000
Grade(s): 10-12 Credit: 1 per year
21st Century Literacy Strategies II 193700
Grade(s): 10-12 Credit: 0.5 per semester,
 students may take two semesters.

Prerequisite: 21st Century Literacy Strategies I

This course is a continuation of 21st Century Literacy Strategies I. Instruction builds upon students' reading and writing competencies and support students' efforts to analyze, compare, evaluate, and interpret information from a variety of disciplines including texts, visual representations, and media.

Introduction to Journalism 187000
Grade(s): 9-12 Credit: 1
Prerequisite: None

This year-long elective introduces students to many facets of newspaper and mass media: production, history, and writing. Students learn to use a variety of journalism skills to write in journalistic style, recognize the role of mass communication in modern society, and understand the First Amendment.

Students selecting this course should have strong writing skills or should have an interest in developing their writing skills.

This course is designed to prepare students to serve on the newspaper staff (Newspaper Journalism I) or the yearbook staff (Photojournalism I).

Newspaper Journalism I 188000
Grade(s): 10-12 Credit: 1
Prerequisite: Introduction to Journalism

Students learn the basics of newspaper production while serving as staff writers for the school newspaper.

Units of study include school press law and ethics, layout and design, basic photography, basic publication technology, journalistic research, interviewing, plant preparation, and advertising.

Students are introduced to publication software.

Newspaper Journalism II 188002
Grade(s): 11-12 Credit: 1
Prerequisite: Newspaper Journalism I

Students serve as staff writers and page editors for the school newspaper.

Units of study expand upon those introduced in Newspaper Journalism I and add on-line publication, polls and statistics, and newspaper evaluation.

Students use publication software to produce the school newspaper

Newspaper Journalism III 188003
Grade(s): 12 Credit: 1
Prerequisite: Newspaper Journalism II

Students serve as editors for the school newspaper.

Units of study expand upon those introduced in Newspaper Journalism I and II and add software and on-line services, press law, photo management, and video interviewing.

Students use publication software to produce the school newspaper.

Photojournalism I 189001
Grade(s): 10-12 Credit: 1
Prerequisite: Introduction to Journalism

Students learn the basics of yearbook production while serving as staff members for the school yearbook.

Units of study include school press law and ethics, layout and design, basic photography, basic publication technology, journalistic research, interviewing, unifying concept, plant preparation, and advertising.

Students are introduced to publication software.

Photojournalism II 189002
Grade(s): 11-12 Credit: 1
Prerequisite: Photojournalism I

Students serve as staff members and page editors for the school yearbook.

Units of study expand upon those introduced in Photojournalism I and add inclusion, accuracy, and fairness; polls and statistics; and yearbook management.

Students use publication software to produce the school yearbook.

Photojournalism III 189003
Grade(s): 12 Credit: 1
Prerequisite: Photojournalism II

Students serve as editors for the school yearbook.

Units of study expand upon those introduced in Photojournalism I and II and add press law, yearbook evaluation, video interviewing, and public relations.

Students use publication software to produce the school yearbook.

Public Speaking 194700
Grade(s): 10-12 Credit: 0.5
Prerequisite: None

Students explore the process of generating, transmitting, receiving, and evaluating ideas and feelings through intrapersonal and interpersonal communication, oral interpretation, group discussion, and public speaking. This course cultivates personal growth and development, develops oral communication skills to other academic disciplines and to life experiences.

Reading Workshop Strategies Strategies 1: 101100
 Strategies 2: 101200
 Strategies 3: 101300
 Strategies 4: 101400
Grade(s): 9-12 Elective Credit: 1
Prerequisite: None

Reading Strategies is an elective course for students with Individualized Educational Plans (IEP) who need specific instruction in reading and reading strategies. This course is taught based upon students' individual needs.

Writing Center I 160801
Grade(s): 10-12 Credit: 1
Prerequisite: Permission of the instructor

This course provides students with an in-depth study of writing in the academic disciplines through tutoring at a high school Writing Center. Students prepare to be peer tutors through an intense examination of the rules of compositions, critical reading, and analytical thinking about writing. Students are expected to refine and develop their own writing abilities through peer tutoring and reflective essays about their tutoring experiences.

Writing Center II 160802
Grade(s): 11-12 Credit: 1
Prerequisite: Writing Center I

This course provides students with continued in-depth study of writing in the academic disciplines through tutoring at a high school Writing Center. Students prepare to be peer tutors through an intense examination of the rules of composition, critical reading, and analytical thinking about writing. Students are expected to refine and develop their own writing abilities through peer tutoring and reflective essays about their tutoring experiences. In addition, Writing Center II students are expected to hold leadership roles in the daily operation of the Writing Center, and complete a research project and presentation on writing in a career of discipline.

English Learners

Special programs of instruction are available for students who have been identified as English Learners (EL). EL classes are offered in all high schools except where a school has too few students

When students enroll in Loudoun County Public Schools they are asked several home language questions on the student registration form. If a language other than English is indicated in any of these responses, an English language proficiency test is administered by a trained assessor. The test helps determine the student's proficiency level.

Each student's placement is determined on an individualized basis. Factors that should be considered before determining course placement include, but are not limited to:

- Proficiency Level
- Prior educational experience
- Student transcripts

EL students must meet all graduation requirements in order to earn a diploma. In some cases, high school age students who possess little or no English skills or who have limited or no prior education may need more than four years to complete the credits and testing needed for graduation from high school. In these instances, age waiver requests for students 20 years or older before August 1st of the school year must be submitted by the high school principal to the Assistant Superintendent of Pupil Services for approval.

EL Literacy 1 190011 Grade(s): 9-12 Elective Credit: 1

In this course, Proficiency Level 1.5 – 2.0 EL students will develop their literacy skills through a variety of reading and writing activities. Students will learn strategies to support their development as active and critical readers and will explore a variety of text types, including both fiction and nonfiction. Students will also create original compositions of varying lengths, styles and types to support their growth as writers in core content and elective study areas.

EL Literacy 2 190012 Grade(s): 9-12 Elective Credit: 1

In this course, Proficiency Level 2.0 – 3.0 EL students will expand their literacy skills in order to become more mature readers and better writers. Students will apply a variety of reading strategies as they become more active and critical readers of increasingly challenging fiction and nonfiction texts. Students will also create original compositions of varying lengths, styles, and types as they expand their skills as writers.

Newcomer English 394010 Grade(s): 9-12 World Language Credit: 1

In this course, Proficiency Level 1.0 – 2.0 EL students learn English vocabulary, grammar, and sentence structure to assist them in the development of academic, cultural, and life skills. Students will develop their literacy skills through a variety of reading and writing activities while exploring various text types, including fiction and nonfiction. All four language domains (listening, speaking, reading, and writing) are incorporated in order to support students' acquisition of academic English.

English as a World Language (EWL) 395010 Grade(s): 9-12 World Language Credit: 1

In this course, Proficiency Level 2.0 – 3.0 EL students learn to expand their communication skills in the four language domains (listening, speaking, reading, and writing). Complex vocabulary, grammatical, and sentence structures are used to extend students' development of academic English.

Advanced English Learners (ADV EL) 197010 Grade(s): 9-12 English Credit: 1

In this course, Proficiency Level 3.0 EL students engage in the four language domains (listening, speaking, reading, and writing) around a variety of topics and themes as they refine their academic English. This course is taught by either an English Learner or an English Language Arts teacher.

Pre-Newcomer EL Mathematics Concepts 588005 Grade(s): 9-12 Elective Credit: 1 (not a Math credit)

In this course, Newcomer EL students (Proficiency Level 1.0 – 2.0) learn the language of mathematics as well as fundamental basic and conceptual math skills to build understanding of key concepts associated with newcomer EL Mathematics Concepts and Algebra I. This course is most appropriate for students at low levels of English proficiency who possess limited background in mathematics and/or have had limited or interrupted schooling.

Newcomer EL Mathematics Concepts 588010 Grade(s): 9-12 Elective Credit: 1 (not a Math credit)

In this course, Newcomer EL students (Proficiency Level 1.0 – 2.5) learn the language of mathematics along with key concepts of the grade-level mathematics curricula of Algebra I and Geometry. The Newcomer EL Mathematics Concepts course can be taken concurrently with a grade-level mathematics course to provide additional support for EL students.

Newcomer EL Science Concepts
Grade(s): 9-12

650310
Elective Credit: 1
(not a Science credit)

In this course, Newcomer EL students (Proficiency Level 1.0 – 2.0) learn the language of science along with key concepts of the grade-level science curricula, including general science theory, earth science, and biology. The Newcomer EL Science Concepts course can be taken concurrently with a grade-level science course to provide additional support for EL students. This course is most appropriate for students at low levels of English proficiency who possess limited background in science and/or have had limited or interrupted prior schooling.

Newcomer EL Social Science Concepts
Grade(s): 9-12

770010
Elective Credit: 1
(not a Social Science credit)

In this course, Newcomer EL students (Proficiency Level 1.0 – 2.0) learn the language of social science along with key concepts of the grade-level social science curricula, including World History and United States and Virginia History. The EL Social Science Concepts course can be taken concurrently with a grade-level Social Science course to provide additional support for EL students. This course is most appropriate for students at low levels of English proficiency who possess limited background in social science and/or have had limited or interrupted prior schooling.

Fine Arts

Art Courses

Art I
Grade(s): 9-12
Prerequisite: None

240000
Credit: 1

A wide variety of experiences enhance the basic foundation of art-related knowledge, skills, and ideas developed in middle school. Students explore ideas, materials, and techniques through creative and critical problem solving. Students engage in the process of creating, presenting, responding, and connecting with their art and the work of others. Class discussion includes both critiques of their own pieces and the work of other artists. Students maintain a portfolio to record their progress.

The course incorporates art history, art criticism, aesthetics, and art production to include experiences with drawing, painting, sculpture, printmaking, ceramics, photography, and computer graphics. The instructor encourages students to make connections between the visual arts and other subject areas to include real world learning experiences.

Art II
Grade(s): 10-12
Prerequisite: Art I

241000
Credit: 1

Students work with more advanced techniques, media, concepts, and ideas. Focus is on the connection between studio production and personal expression. Students engage in the process of creating, presenting, responding, and connecting with their art and the work of others. Students begin to develop and refine personal technique and style through the study of art history, art criticism, and aesthetics in relation to studio production.

Students continue to add to their portfolios. Units of study allow for more in-depth study of various media and the creative process connected to real world learning experiences. Units provide a balance of two- and three-dimensional experiences.

Art III
Grade(s): 11-12
Prerequisite: Art II or Art I and 2 semester courses

242000
Credit: 1

Students enhance and refine their personal techniques and styles through the further study of art history, art criticism, and aesthetics in relation to studio production. They begin to take the initiative for generating and designing studio assignments using advanced techniques, media, and concepts tied in with real world learning experiences.

Through the synthesis of art production, art history, art criticism, and aesthetics, students focus on the relevance of art throughout history and in their own lives. Students continue to develop their portfolios for use in demonstrating their progress and as an effective college entrance asset.

During second semester, interested students should consult with their instructor about requirements for the AP studio art portfolio.

Art IV
Grade(s): 12
Prerequisite: Art III

243000
Credit 1

Art IV provides the advanced student with opportunities to initiate and design studio units of study connected to real world learning experiences. With the instructor's guidance and consultation, students work in a variety of media as they pursue individual creative and expressive ideas.

They continue to enhance and refine personal techniques and style through further study of art history, art criticism, and aesthetics. They also further develop their portfolios. Options for study and employment in the arts after high school are discussed. Presentations by local art professionals and visits to museums further the students' art appreciation and understanding.

AP Studio Art 249100
Grade(s): 12 Credit: 1
Prerequisite: Art III

Within the Art IV class setting, motivated advanced art students may choose to complete the AP Studio Art portfolio, following AP guidelines. Developing the portfolio involves extensive additional studio time devoted to connecting critical thinking and the conceptual skills to expressive studio technique.

The portfolio requires numerous works within either drawing, 2- or 3-dimensional design. Also, students work with their art teacher to capture digital images of their artworks that adhere to the image submission requirements.

The portfolio is an excellent opportunity for students to develop an effective college or university, art school, or art-related employment application tool.

Students have the opportunity to take the AP Studio Art Portfolio Exam in May with the possibility of earning college credit.

If this course is repeated more than once, the discipline must be different than previously taken. For example, under AP Studio Art a student may choose from 2D, Drawing, or 3D.

Survey of Art and Architecture History I 247700
Grade(s): 9-12 Credit: 0.5
Prerequisite: None

Students study art and architecture and their historic impact on society from prehistoric time through the Renaissance. The course leads students to a heightened awareness of and appreciation for the interaction between social, scientific, and philosophical developments in past societies and the art and architecture that these societies produced.

Students have opportunities to experience related studio activities and to use research skills as they prepare reports and presentations.

Survey of Art and Architecture History II 248700
Grade(s): 9-12 Credit: 0.5
Prerequisite: None

Students study art and architecture from the Renaissance through the 21st century. Students compare and contrast their own culture with those cultures and societies of the past in terms of economic, social, and scientific factors.

Students experience related studio activities and use research skills as they prepare reports and presentations.

Computer Graphic Design 232700
Grade(s): 10-12 Credit: 0.5
Prerequisite: Art I

Graphic designers are responsible for the design of every product, advertisement, and illustration that we come into contact with today. This course will serve as an introductory survey of both the commercial and fine art applications of graphic design. The focus will be on the use of various commercial based software to develop, create, record, and design original student generated work.

The fine art component will allow for a variety of basic commercial graphic tools to be utilized for creating original imagery. Graphic Design and imagery will be approached as a method for investigating and recording the visual world. Through the process, students will apply design skills and better understand how each graphic design may communicate a powerful message to the viewer.

Students will produce original examples of digital imagery and typography. Potential topics include type/image/design element integration; print media production; and product/package design. Whenever possible, contemporary examples of designers' digital works will be offered as an integral part of the students' learning experience.

Drawing and Painting 231700
Grade(s): 10-12 Credit: 0.5
Prerequisite: Art I

This semester-long course allows participants an opportunity to explore drawing and painting as a method for investigating and recording the visual and imagined world. Varied media, styles, and methods are discovered as students learn to sharpen their observational skills. The drawing component encompasses an understanding of the basic elements of drawing: line; mark; tone; value; scale; and space. The painting component explores the basic elements of painting: color; shape; space; tone; value; and mark. Both drawing and painting allow students expressive and imaginative ideas to meld with the observable world. Historic and contemporary artists of diverse cultural backgrounds are presented to establish a connection with students' own drawing and painting. Students maintain a sketchbook/journal through the semester as a record of learning and as a container for recording, imagining, and self-expression.

Photography 245700
Grade(s): 10-12 Credit: 0.5
Photography 245600
Grade(s): 10-12 Credit: 1
Prerequisite: Art I

The photography course is designed to serve as an introduction to black and white and digital photography. The class is offered to those students who have completed Art I, at a minimum, in order to assure that students have a background in basic design and composition. Students learn about the workings of a 35mm single lens reflex camera, the chemistry of film and print development, digital photography, and the aesthetics of quality compositional photographs. Students work in Adobe Photoshop to artistically alter and augment photos. Some history of photography is also introduced. It is desired, although not required, that students provide their own cameras.

Students may select a full-year or one-semester course in Photography. The full-year course includes more in-depth instruction and experience. Based on student interest, schools have the option to offer the semester/yearlong photo classes as one or both of the following: Digital and Darkroom (wetroom) or Digital Photo.

Sculpture 244700
Grade(s): 10-12 Credit: 0.5
Prerequisite: Art I

Sculpture is designed to provide an opportunity for students to explore the fundamentals of three-dimensional design and to work with a variety of traditional and new materials. Emphasis is placed on creating works that translate personal expression as well as good sound design and studio techniques.

Students' work is enhanced by an exploration of the contribution of major sculptors and their influences on the world of sculpture.

Music Courses

Music Appreciation 260000
Grade(s): 9-12 Credit: 1
Prerequisite: None

Exploring the impact of music throughout the ages helps students become informed consumers and culturally aware participants in the 21st century. Students explore music in a wide variety of musical styles and time periods in this course. They will explore the relationship of music to art, architecture, and history, as well as the use of music technology in today's music. A lively curiosity and an interest in exploring the power of music are the only prerequisites for this class.

Music Theory/History 262000
Grade(s): 9-12 Credit: 1
Prerequisite: None

The ability to understand and converse in the language of written music is the key to gaining a deeper understanding of the music that surrounds people. Students develop their keyboard skills through original musical compositions, build critical thinking skills, and compare musical examples. This course is recommended for students planning to pursue music in college and for the joy of creation to anyone who loves music. No performance is required.

AP Music Theory 262100
Grade(s): 9-12 Credit: 1
Prerequisite: Successful completion of Music Theory/History and/or teacher recommendation

Students in Advanced Placement Music Theory learn to recognize, understand, analyze and describe elements of music theory through composition, aural skills (ear-training, dictation, and sight-singing), notation terminology, and score analysis. Students in AP Music Theory are highly encouraged to be active in some form of music performance or composition.

Students have the opportunity to take the AP Music Theory exam in May with the possibility of earning college credit.

Instrumental Music Courses

Instrument Methods 270000
Grade(s): 9-12 Credit: 1
Prerequisite: Teacher Recommendation/Audition

Students develop fundamental playing skills on musical instruments in a supportive environment in the Instrumental Methods class. They receive special coaching in the areas of tone production, music reading, fingerings, and playing in an ensemble. Public performance are not stressed, but a concert may be planned at the teacher's discretion.

Concert Band I 272000
Grade(s): 9-12 Credit: 1
Prerequisite: Teacher Recommendation/Audition

This performance-oriented band participates in concert appearances and Virginia Music Education Association events. Students continue the in-depth mastery of basic fundamentals of music while preparing pieces for performances. As a co-curricular ensemble, performances and rehearsals outside regular school hours are required.

Concert Band II 274000
Grade(s): 9-12 Credit: 1
Prerequisite: Teacher Recommendation/Audition

Students in this class expand their knowledge and skills of instrumental techniques, tone production, musical interpretation, and ensemble/solo performance to an advanced level. Concert Band II is a performance-oriented class, and students are active in numerous concerts and events. As a co-curricular ensemble, performances and rehearsals outside regular school hours are a requirement.

Beginning Orchestra 275004
Grade(s): 9-12 Credit: 1
Prerequisite: None

This class is open to students who wish to learn how to play an orchestral string instrument but have no previous musical experience. Attention is focused on the development and understanding of fundamental string techniques including proper tone production, bow hold, hand positions, and aural and notation reading skills. Students are expected to supply their own instruments.

Intermediate Orchestra 275003
Grade(s): 9-12 Credit: 1
Prerequisite: Successful completion of LCPS middle school orchestra program, high school level Beginning Orchestra, or teacher recommendation.

Students in the Intermediate Orchestra course continue to develop proper tone production, style, playing technique, and appropriate ensemble skills while preparing musical selections for performance. As a co-curricular ensemble, performances outside regular school hours are a requirement.

Advanced Orchestra 275002
Grade(s): 9-12 Credit: 1
Prerequisite: Successful completion of high school Intermediate Orchestra or teacher recommendation

Technical and expressive skills increase in difficulty as students demonstrate mastery of a variety of articulations, bowings, positions, required scales, and arpeggios. Students at the advanced level perform, discuss, and critically evaluate characteristics of more elaborate musical compositions. This is a performance-oriented class, and students are active in numerous concerts and events. As a co-curricular ensemble, performances outside regular school hours are a requirement.

Artist Orchestra 275001
Grade(s): 9-12 Credit: 1
Prerequisite: Successful completion of high school Advanced level or teacher recommendation

Students who perform at the Artist level have built upon and mastered the previous high school skill levels of Beginning, Intermediate, and Advanced Orchestra. The Artist Orchestra student demonstrates exceptional skill level and is able to perform, discuss, analyze, and critically evaluate characteristics of more elaborate music compositions from a variety of styles, cultures, and historical periods. The ensemble is performance-oriented and is involved in concert appearances and county, regional, and state events. As a co-curricular ensemble, performances outside regular school hours are a requirement.

Jazz Ensemble 276000
Grade(s): 9-12 Credit: 1
Prerequisite: Teacher Recommendation/Audition

The basic fundamentals of jazz (theory, interpretation, improvisation, and other techniques) are covered in this performance-oriented class. As a co-curricular ensemble, performances and rehearsals outside regular school hours are a requirement.

Beginning Guitar 293000
Grade(s): 9-12 Credit: 1
Prerequisite: None

This class is open to students with no previous musical experience. The purpose of this course is to prepare students for a lifetime of guitar playing and music appreciation. Topics include standard musical notation; knowledge of the fretboard through fifth position; introduction to left- and right-handed techniques, including fingerstyle and pick technique; fundamentals of music; chords; basic song accompaniment; music history; listening; and understanding of guitar terminology. The class also includes solo and ensemble literature. A variety of musical styles are explored. Students must supply a standard nylon string classical guitar.

Intermediate Guitar 294000
Grade(s): 9-12 Credit: 1
Prerequisite: Successful completion of Beginning Guitar, Audition, or Teacher Recommendation

This class is open to students who have completed the LCPS guitar program in middle school or have successfully completed the Beginning Guitar class at the high

school level. Students who do not meet these prerequisites may be accepted by audition. The purpose of this course is to prepare students for a lifetime of guitar playing and music appreciation. Topics include completion of the fingerboard, refinement of right- and left-handed technique, advanced chord forms, scales, improvisation, and solo and ensemble repertoire. A variety of musical styles are explored. The ensemble is performance-oriented and is involved in concert appearances and county events. As a co-curricular ensemble, performances outside regular school hours are a requirement. Students must supply a standard nylon string classical guitar.

Advanced Guitar 295000
Grade(s): 9-12 Credit: 1
Prerequisite: Successful completion of Intermediate Guitar, Audition, or Teacher Recommendation

This class is open to students who have completed Intermediate Guitar. Students who have not completed Intermediate Guitar may be accepted by audition. The purpose of this course is to prepare students for a lifetime of guitar playing and music appreciation. Topics include mastery of the fingerboard, refinement of right- and left-handed technique, advanced chord forms, scales, improvisation, and advanced solo and ensemble repertoire. A variety of musical styles are explored. The ensemble is performance-oriented and is involved in concert appearances and county events. As a co-curricular ensemble, performances outside regular school hours are a requirement. Students must supply a standard nylon string classical guitar.

Artist Guitar 296000
Grade(s): 9-12 Credit: 1
Prerequisite: Successful completion of Advanced Guitar, Audition, or Teacher Recommendation

Students who perform at the Artist level have built upon and mastered the previous skill levels of Beginning, Intermediate, and Advanced Guitar. Artist Guitar students perform, discuss, analyze, and critically evaluate characteristics of more elaborate music compositions from a variety of styles. The ensemble is performance-oriented and is involved in concert appearances and county events. As a co-curricular ensemble, performances outside regular school hours are a requirement. Students must supply a standard nylon string classical guitar.

Vocal Music Courses

Mixed Chorus 280000
Grade(s): 9-12 Credit: 1
Prerequisite: None

Mixed Chorus provides a singing experience for students who have no background in choral music. Through participation in performances, students build self-confidence and the concept of teamwork. Basic vocal technique, music literacy and sight reading are components of this class. Students will develop choral literacy by singing a wide variety of choral literature that is both sacred and secular. Participation in ensemble performances is required.

Small Vocal Ensemble 278000
Grade(s): 9-12 Credit: 1
Prerequisite: Audition

The Small Vocal Ensemble offers unique opportunities for highly motivated and dedicated singers who can perform at a high level of proficiency. Students receive specialized coaching in singing techniques and perform music in a wide variety of styles. Music literacy and sight reading are components of this class. Students will develop choral literacy by signing literature that is sacred and secular. Participation in ensemble performances is required.

Advanced Mixed Chorus 282000
Grade(s): 9-12 Credit: 1
Prerequisite: Audition

Advanced Chorus is a select group of highly motivated and committed students who are seeking a more intense performance experience. Members of this group will continue to build their individual skills by performing in a variety of settings. Students will develop choral literacy by singing a wide variety of choral literature that is both sacred and secular. Music literacy and sight reading are components of this class. Participation in concerts as well as certain choral competitions is required.

Men's Chorus 284000
Grade(s): 9-12 Credit: 1
Prerequisite: Audition

Auditioned Men's Chorus is a select group of men who have the opportunity to perform three and four-part music written for the male voice. Members of this group continue to build their vocal skills by performing in a variety of settings. Music literacy and sight reading are components of this class. Students will develop choral literacy by singing a wide variety of choral literature that is both sacred and secular. Participation in concerts as well as certain choral competitions is required.

Women's Chorus 286000
Grade(s): 9-12 Credit: 1
Prerequisite: Audition

Auditioned Women's Chorus is a select group of women who have the opportunity to perform three and four-part music written for the female voice. Members of this group continue to build their vocal skills by performing in a variety of settings. Music literacy and sight reading are components of this class. Students will develop choral literacy by singing a wide variety of choral literature that is both sacred and secular. Participation in concerts as well as certain choral competitions is required.

Men's Chorus 284001
Grade(s): 9-12 Credit: 1
Prerequisite: None

Men who have no prior singing experience have the opportunity to participate in Men's Chorus. Through participation in performances, students build self-confidence and the concept of teamwork. Basic vocal technique, music literacy and sight reading are components of this class. Students will develop choral literacy by singing

a wide variety of choral literature that is both sacred and secular. Participation in ensemble performances is required.

Women's Chorus 286001
Grade(s): 9-12 Credit: 1
Prerequisite: None

Women who have no prior singing experience have the opportunity to participate in Women's Chorus. Through participation in performances, students build self-confidence and the concept of teamwork. Basic vocal technique, music literacy and sight reading are components of this class. Students will develop choral literacy by singing a wide variety of choral literature that is both sacred and secular. Participation in ensemble performances is required.

Theatre Arts

All Theatre Arts courses are English Electives

Theater Arts I 250000
Grade(s): 9-12 Credit: 1
Prerequisite: None

Students survey the technical and performing art of theater. They are exposed to the major elements of theater and gain knowledge of its principles through study and practice in both performance and production. Representative units of study include improvisation, mime, basic acting, the history of the theater, stage settings, costuming, make-up, and lighting.

Theater Arts II 251000
Grade(s): 10-12 Credit: 1
Prerequisite: Theater Arts I, or by audition/interview

More than a continuation of Theater Arts I, Theater Arts II is an in-depth study of areas covered only briefly in the first year and an introduction to new areas. The basic course is built on a cluster of required units that stress direction, design, and acting.

Required units are augmented or new units added to accommodate students' abilities and experiences.

Theater Arts III 252000
Grade(s): 11-12 Credit: 1
Prerequisite: Theater Arts II, or by audition/interview

Designed for students with high interest and motivation for study in the theater arts while increasing their understanding of the entire realm of theater, the course provides the students with the opportunity to put theory into practice through major projects in directing, acting, and design.

Theater Arts IV 253000
Grade(s): 12 Credit: 1
Prerequisite: Theater Arts III, or by audition/interview

Designed for students with intense interest in theater arts at professional and/or collegiate levels, Theater Arts IV students also complete independent projects specifically suited to individual strengths.

Although students have the opportunity to perform certain independent projects, they are expected to perform in group projects and activities in a leadership capacity.

Technical Theater I 254000
Grade(s): 9-12 Credit: 1
Prerequisite: None

The course is an exploration of the duties of state technicians and their contribution to the total aesthetic effect of a dramatic production. Topics covered include design research and principles; scene shop organization; painting and construction techniques; equipment use and maintenance; principles and application of sound, lighting, and computer technology; the use of special effects; costume and make-up considerations and selection; publicity and business management; theater safety; and the function of technical stage personnel in production work. Technical theater incorporates academic study and hands-on application of knowledge and skills.

Technical Theater II 255000
Grade(s): 10-12 Credit: 1
Prerequisite: Technical Theater I
This course can be retaken for credit.

Similar to Technical Theater I, the course involves additional exploration of the duties of stage technicians and their contribution to the total aesthetic effect of a dramatic production. Topics covered include a review of basic design research and principles; leadership roles in scene shop supervision; a review of principles and application of sound, lighting, and computer technology with an emphasis on sound and lighting design principles; a survey of theater safety from the perspective of students' increased roles as supervisors in scene work activity; and major technical stage positions in production work. Technical Theater II incorporates additional research and academic study and hands-on application of knowledge and skills. Technical II students also complete an additional unit of Design/Technical Portfolio in preparation for college admission requirements. Students may retake Technical Theater II for credit, specializing in an area of student and revising their design/technical portfolios to reflect their growing expertise in their specialization.

Drama Projects: Musical Theatre 257000
Grade(s): 10-12 Credit: 1
Prerequisite: Theater Arts I and/or special permission by Theatre Arts Instructor

In Drama Projects (Musical Theatre), students will intensify their study of all styles of theatre with a central focus on musical theatre. Great emphasis will be placed on developing one's audition skills and students will be expected to participate in a rigorous audition process in a variety of styles as part of the course. Rehearsal and Performance will be used to explore musical theatre in a studio workshop setting. Students will study the work of the actor/singer/dancer and use their gained knowledge to develop as performers. There will be a concentration on vocal methods and music, including vocal technique and sight-singing. Additionally, students will study different styles of movement and dance including modern, jazz and contemporary.

Not all schools may offer this course.

Introduction to Theatre Arts DE 258000/258006
Grade(s): 11-12 Credit: 1
Prerequisite: None

Surveys the principles of drama, the development of theatre production, acting styles, performance and selected plays to acquaint the student with various types of theatrical presentations. Further study of the playwright, actor, director and designers aims to increase the knowledge and enjoyment of theatre. Study of theatre arts will focus on process, rehearsal, performance and organization from text to production.

Upon successful completion of this course, students will earn 6 college credits from Northern Virginia Community College.

Theatre History/Literature and Performance DE 256000/256006
Grade(s): 12 Credit: 1
Prerequisite: Intro to Theatre Arts DE

Analyzes and studies all aspects of theatre history. Topics of study include acting, acting styles, primitive tribal ritual, Greek theatre, Medieval drama, Commedia del Art, Elizabethan theatre, French theatre, German theatre, and modern theatre. Great emphasis will be placed on understanding the dramatic literature, staging, directing and acting of each period of history. Production methods will be explored to understand the relationship of theatre history to cultural and societal influences.

Upon successful completion of this course, students will earn college credits from Richard Bland College.

Health and Physical Education

Health and Physical Education 9 440000
Virtual Loudoun 440V00
Grade(s): 9 Credit: 1
Prerequisite: None

Students are offered a variety of challenging activities with an emphasis on incorporating the five components of fitness and the application of the scientific principles of anatomy and physiology into a fitness plan. High School Health and Physical Education is scheduled for one block every other day. Students begin to develop personal choices for preferred activities that include cooperative games, individual and dual sports, team sports, rhythmic activities, physical fitness testing, and lifetime fitness and recreational activities.

The 9th grade health curriculum includes topics such as personal fitness and nutrition; stress and mental health; sleep; alcohol, tobacco, and drugs; gang involvement; endocrine system; body image and eating disorders; risk behaviors; consumer health and health agencies; global health issues; certification training in Cardio-Pulmonary resuscitation (CPR), Automatic External Defibrillation (AED) and First Aid; community health; and the use of technology in making informed, healthy choices. Selected Family Life Education (FLE) topics are also included in this course.

Health and Physical Education 10 450000
Virtual Loudoun 450V00
Grade(s): 10 Credit: 1
Prerequisite: Health and PE 9

Students are offered a variety of challenging activities with an emphasis on incorporating the five components of fitness and the application of the scientific principles of anatomy and physiology into a fitness plan. High School Health and Physical Education is scheduled for one block every other day. At this level, students select preferred activities from a menu of activities, including cooperative games, individual and dual sports, team sports, rhythmic activities, and lifetime fitness and recreational activities. Physical fitness testing is also included in this course.

The 10th grade health curriculum includes topics such as medical and health career opportunities; alcohol, tobacco, and other drugs; organ donation; nutrition and wellness planning; risk behaviors; sedentary lifestyle; cancer; chronic disease; suicide; need for medical screenings; crisis management plans for natural disasters; emotional health; peer pressure; and conflict resolution. Driver Education classroom instruction and selected Family Life Education (FLE) topics are also included in this course.

Classroom Driver Education 453000
Grade(s): 10 Credit: 0
Prerequisite: Health and PE 9

This course consists of 36 hours of classroom instruction and the 90-minute Partners for Safe Teen Driving presentation. Classroom Driver Education includes topics such as motor vehicle laws, vehicle controls, influences on driver behavior, adverse conditions, responsible driving behaviors, time and space management, and basic maneuvers. This course follows the Virginia Standards of Learning for Driver Education classroom instruction.

As mandated by the Virginia General Assembly, a 90-minute Partners for Safe Teen Driving presentation is also required for classroom completion. The parent/guardian **and** teen driver must attend this presentation together (§22.1-205 of the *Code of Virginia*). Students will not be issued a Driver Education classroom completion card (DEC-1) until this requirement is met.

Students taking Classroom Driver Education will earn the grades of **P-Pass**, **N-Not Pass**, or **F-Fail**. If a student does not attend the Partners for Safe Teen Driving presentation that is offered at every high school, the student will earn a grade of N until they complete the presentation.

Transfer students, students who failed the Driver Education portion of H/PE 10, or students who have taken and passed Driver Education but failed the Department of Motor Vehicles written test must re-take the classroom portion of Driver Education. Students should take a state-approved Classroom Driver Education course online.

Advanced Physical Education I 460000
Grade(s): 11-12 Credit: 1
Advanced Physical Education I 460700
Grade(s): 11-12 Credit: 0.5
Prerequisite: Health and PE 10

This elective course is designed for students who have an interest in maintaining overall fitness for life. Advanced PE promotes an appreciation of the benefits of lifetime physical fitness, with an emphasis placed on self-selection of activities that the student will be likely to continue for a lifetime. Students have the opportunity to develop an advanced level of proficiency in the following areas: individual and dual sports, team sports, weight training and conditioning, personal fitness, recreational activities, and rhythmic activities. Students also develop a fitness portfolio that includes personal fitness goals, nutrition, and healthy choices.

This course may be offered in alternating years.

Advanced Physical Education II 465000
Grade(s): 11-12 Credit: 1
Advanced Physical Education II 465700
Grade(s): 11-12 Credit: 0.5
Prerequisite: Health and PE 10

This elective course focuses on the design and implementation of a personal fitness portfolio that includes dietary needs; personal fitness goals; physical activities that are self-selected and sustainable for a lifetime; ongoing fitness and nutrition assessments; understanding of target heart rate; use of fitness data; and daily activity logs that are designed to record physical activity in the moderate to vigorous range.

Students may select physical activities from the following areas: individual and dual sports, team sports, weight training and conditioning, personal fitness, recreational activities, and rhythmic activities.

This course may be offered in alternating years.

Mathematics

Algebra I, Part 1* 542000
Grade(s): 9-12 Credit: 1*
Prerequisite: Mathematics 8

Algebra I, Part I supports and promotes student success in mathematics coursework necessary to fulfill graduation requirements. While strengthening prerequisite skills in the areas of operations with whole numbers, fractions, decimals, percentages, integers, and rational numbers, algebraic concepts are solidified through modeling and the use of manipulatives, graphing calculators, and computer software where appropriate. A concentration on improving problem solving and communication in mathematics builds student confidence. Students may earn one mathematics credit for the Standard Diploma with Credit Accommodations by successfully completing Algebra I, Part 1.

Algebra I, Part 2* 543000
Grade(s): 9-12 Credit: 1
(if completed in conjunction with Algebra I, Part 1)
Prerequisite: Algebra I, Part 1

SOL Test Algebra I, Part 2 supports and promotes student success in mathematics coursework necessary to fulfill graduation requirements. The study of linear and quadratic equations, linear inequalities, systems of equations, and functions inherent in Algebra are emphasized in the course.

Graphing calculators and other emerging technologies are used to facilitate problem solving, data analysis, and transformational graphing. Students should consult with their school counselor about the credits that may be used to fulfill the mathematics requirements for a high school diploma.

***These courses may only be used as mathematics credits to fulfill the requirements of a Standard Diploma with Credit Accommodations.**

Algebra I 540000
Virtual Loudoun 540V00
Grade(s): 9-12 Credit: 1
Prerequisite: Successful completion of Grade 7 or Grade 8 Mathematics

SOL Test Algebra I incorporates concepts and skills necessary for students to pursue the study of rigorous advanced mathematics. The arithmetic properties of numbers are extended to include the development of the real number system. The fundamental concepts of equality, functions, multiple representations, probability, and data analysis guide the activities that allow students to enhance problem solving skills.

Computers and graphing calculator technologies are incorporated into the curriculum in order to allow students opportunities to explore concepts, provide visual models to support the learning of algebraic concepts, and as powerful tools for solving and verifying solutions to equations and inequalities. Mathematical communication and reasoning are emphasized throughout the course.

Algebra Intervention 557700
Grade(s): 9-12 Credit: 0.5
Prerequisite: Algebra I and teacher recommendation

Algebra Intervention is designed to provide students with tools to help them master topics found on the end of year Algebra I SOL exam. This course will address topics in operations and linear equations, inequalities, linear functions, and data organizations. Students will use functions to represent, model, analyze, and interpret relationships in problem situations.

This course will be assigned as needed. Credit from this course does not count toward the math graduation requirement.

Personal Living and Finance 591070
Grade(s): 9-12 Credit: 1
Prerequisite: Mathematics 8

Personal Living and Finance is a course intended to help students prepare for the world of work. Practical applications are used throughout the course to provide real-world examples of computation. Simulations in the course include such topics as buying a car, renting an apartment, managing a budget, taxes, using credit wisely, investments, and insurance.

This course is only used to fulfill the mathematics requirements for a Modified Standard Diploma or Applied Studies diploma.

Geometry 550000
Virtual Loudoun 550V00
Grade(s): 9-12 Credit: 1
Prerequisite: Algebra I

SOL Test Geometry is the combined study of plane, solid, and coordinate geometric concepts that provide students with the skills necessary for the study of advanced mathematics. Investigations of lines, planes, congruence, similarity, areas, volumes, circles, and three-dimensional shapes are incorporated to provide a complete course of study. Formal and informal deductive reasoning skills are developed and applied to the construction of formal proofs. An emphasis on reasoning, problem solving, and proof is embedded in the course and includes two-column proofs, paragraph proofs, and coordinate proofs.

Computers and graphing calculator technologies are incorporated into the curriculum in order to allow students opportunities to explore concepts, engage in inquiry based learning, provide visual models to support the learning of geometric concepts, and as powerful tools for solving and verifying solutions to equations and inequalities. Mathematical communication and reasoning are emphasized throughout the course.

Functions, Algebra, and Data Analysis 565000
Grade(s): 9-12 Credit: 1
Prerequisite: Algebra I

Designing experiments and building mathematical models to describe the experimental results allow students to strengthen conceptual understandings of linear, quadratic, exponential, and logarithmic functions. Within the context of mathematical modeling and data analysis, students study functions and their behaviors, systems of inequalities, probability, experimental design and implementation, and analysis of data.

Data is generated by practical applications arising from science, business, and finance. Students solve problems that require the formulation of linear, quadratic, exponential, or logarithmic equations or a system of equations. Through the investigation of mathematical models and interpretation/analysis of data from real life situations, students strengthen conceptual understandings in mathematics and further develop connections between algebra and statistics.

Graphing calculators and other emerging technologies are incorporated into instruction to enhance teaching and learning. Mathematical communication,

reasoning, problem solving, critical thinking, and multiple representations are emphasized throughout the course.

Algebra II 560000
Virtual Loudoun 560V00
Grade(s): 9-12 **Credit: 1**
Prerequisite: Algebra I and Geometry

Algebra II provides a thorough study of functions, including parent functions, families of functions, and transformational graphing. Transformational graphing uses translations, reflections, dilations, and rotations to generate a family of graphs from a parent graph. The continued study of equations, systems of equations, inequalities, and systems of inequalities builds on Algebra I concepts while polynomials, imaginary numbers in the complex number system, and sequences and series allow additional opportunities for modeling and practical applications.

Graphing calculators and other emerging technologies are incorporated into instruction to enhance teaching and learning. Mathematical communication, reasoning, problem solving, critical thinking, and multiple representations are emphasized throughout the course.

Algebra II/Trigonometry 571000
Virtual Loudoun 571V00
Grade(s): 9-12 **Credit: 1**
Prerequisite: Algebra I and Geometry

SOL Test Algebra II/Trigonometry provides a thorough study of functions, including parent functions, families of functions and transformational graphing. Transformational graphing uses translations, reflections, dilations, and rotations to generate a family of graphs from a parent graph. The continued study of equations, systems of equations, inequalities, and systems of inequalities builds on Algebra I concepts while polynomials, imaginary numbers in the complex number system, matrices, and sequences and series allow additional opportunities for modeling and practical applications.

The study of trigonometry includes trigonometric definitions, applications, equations, and inequalities. The connections between right triangle ratios, trigonometric functions, and circular functions are emphasized.

Graphing calculators and other emerging technologies are incorporated into instruction to enhance teaching and learning. Mathematical communication, reasoning, problem solving, critical thinking, and multiple representations are emphasized throughout the course.

Statistics and Probability 597700
Grade(s): 10-12 **Credit: 0.5**
Prerequisite: Algebra II

Elementary probability and statistics are studied with an emphasis on collecting data and interpreting data through numerical methods. Specific topics include the binomial and normal distributions, probability, linear correlation and regression, and other statistical methods. Students are expected to understand the design of statistical experiments. They are encouraged to study a problem, design and conduct an experiment or survey, and interpret and communicate the outcomes. Through meaningful

activities and simulations, students are provided with experiences that model the means by which data are collected, used, and analyzed. This course enables students to be wise users of statistical materials.

Graphing calculators and other emerging technologies are incorporated into instruction to enhance teaching and learning. Mathematical communication, reasoning, problem solving, critical thinking, and multiple representations are emphasized throughout the course.

Discrete Mathematics 599700
Grade(s): 10-12 **Credit: 0.5**
Prerequisite: Algebra II

Discrete Mathematics involves applications using discrete variables rather than continuous variables. Modeling and understanding finite systems is central to the development of the economy, the natural and physical sciences, and mathematics itself.

This course introduces the topics of social choice as a mathematical application, matrices and their uses, graph theory and its applications, and counting and finite probability, as well as the processes of optimization, existence, and algorithm construction.

Graphing calculators and other emerging technologies are incorporated into instruction to enhance teaching and learning. Mathematical communication, reasoning, problem solving, critical thinking, and multiple representations are emphasized throughout the course.

Advanced Functions and Modeling 572000
Grade(s): 10-12 **Credit: 1**
Prerequisite: Algebra II

Advanced Functions and Modeling provides opportunities for students to deepen understanding and knowledge of functions-based mathematics through investigations of mathematical models and interpretation/analysis of data from real-life situations. Problem solving and critical thinking provide the structure in which functions (polynomial, exponential, logarithmic, transcendental, and rational) are studied. Experimental design provides the foundation for data gathering, curve sketching, and curve fitting in order to provide a graphical interpretation of real world situations.

Graphing calculators and other emerging technologies are incorporated into instruction to enhance teaching and learning. Mathematical communication, reasoning, problem solving, critical thinking, and multiple representations are emphasized throughout the course.

Advanced Algebra/Precalculus 585000
Virtual Loudoun 585V01
Grade(s): 10-12 **Credit: 1**
Prerequisite: Algebra II

Advanced Algebra/Precalculus emphasizes polynomial, exponential, logarithmic, and rational functions, theory of equations, sequences and series, conic sections, limits, mathematical induction, and the Binomial Theorem. Trigonometry topics include triangular and circular definitions of the trigonometric functions, establishing identities, special angle formulas, Law of Sines, Law of Cosines, and solutions of trigonometric equations. Constructing, interpreting, and using graphs of the various

function families are stressed throughout the course of study. Students are encouraged to explore fundamental applications of the topics studied with the use of graphing calculators.

Mathematical communication, reasoning, problem solving, critical thinking, and multiple representations are emphasized throughout the course.

Mathematical Analysis **586000**
Virtual Loudoun **586V00**
Grade(s): 9-12 **Credit: 1**
Prerequisite: Algebra II/Trigonometry or Advanced Algebra/Precalculus

Mathematical Analysis introduces mathematical induction, matrix algebra, vectors, and the Binomial Theorem. A detailed treatment of function concepts provides opportunities to explore mathematics topics deeply and to develop an understanding of algebraic and transcendental functions, parametric and polar equations, sequences and series, conic sections, and vectors. Mathematical Analysis also includes precalculus topics such as limits and continuity, the derivative of functions of a single variable, and curve sketching. The course of study is enhanced by making connections to the concepts presented to other disciplines.

Students routinely use graphing calculators as tools for exploratory activities and for solving rich application problems. Mathematical communication, reasoning, problem solving, critical thinking, and multiple representations are emphasized throughout the course.

Computer Mathematics –
Introduction to Computer Science **593000**
Grade(s): 9-12 **Credit: 1**
Co-requisite: Algebra II

Computer Mathematics serves as an introduction to Computer Science and to object-oriented programming using JAVA. Students will learn to design graphical interfaces, write browser applets, and create their own games using the principles of OOP (object-oriented programming) using user defined objects, encapsulation of data, and libraries. Students develop and refine skills in logic, organization, and precise expression, thereby enhancing learning in other disciplines. Programming is introduced in the context of mathematical concepts and problem solving. Students define a problem; develop, refine, and implement a plan; and test and revise the solution.

AP Computer Science A **595100**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Computer Mathematics and Algebra II or Principal permission

AP Computer Science A is taught according to the syllabus for Computer Science A, available through the College Entrance Examination Board. Major topics in the course include programming methodology, algorithms, and data structures. Topics are extended to include constructs, data types, functions, testing, debugging, algorithms, and data structures. The JAVA programming language is used to implement computer-based solutions to meaningful problems. Treatments of computer systems and the social implications of computing are integrated into the course.

Students have the opportunity to take the AP Computer Science A exam in May with the possibility of earning college credit.

AP Calculus AB **585100**
Grade(s): 11-12 **Credit: 1**
Prerequisite: Mathematical Analysis or Advanced Algebra/Precalculus

AP Calculus AB explores the topics of limits/continuity, derivatives, and integrals. These ideas are examined using a multilayered approach, including the verbal, numerical, analytical, and graphical analysis of polynomial, rational, trigonometric, exponential, and logarithmic functions and their inverses. The student is expected to relate the connections among these approaches. Students are also required to synthesize knowledge of the topics of the course to solve applications that model physical, social, and/or economic situations. These applications emphasize derivatives as rates of change, local linear approximations, optimizations and curve analysis, and integrals as Riemann sums, area of regions, volume of solids with known cross sections, average value of functions, and rectilinear motions. Emerging technologies are incorporated into the curriculum as they become available.

Students have the opportunity to take the AP Calculus AB exam in May with the possibility to earn college credit.

AP Calculus BC **586100**
Grade(s): 11-12 **Credit: 1**
Prerequisite: Mathematical Analysis or Calculus AB – Advanced Placement

Advanced Placement Calculus BC is intended for students who have a thorough knowledge of analytic geometry and elementary functions in addition to college-preparatory algebra, geometry, and trigonometry. Although all of the elements of the AP Calculus AB course are included, the course provides a more rigorous treatment of these introductory calculus topics. The course also includes the development of the additional topics required by the College Entrance Examination Board in its syllabus for AP Calculus BC. Among these are parametric, polar, and vector functions; the rigorous definition of limit; advanced integration techniques; Simpson's Rule; length of curves; improper integrals; Hooke's Law; and the study of sequences and series. The use of the graphing calculator is fully integrated into instruction and students are expected to confirm and interpret results of problem situations that are solved using available technology. Emerging technologies are incorporated into the curriculum and as they become available.

Students have the opportunity to take the AP Calculus BC exam in May with the possibility to receive college credit.

AP Statistics
Grade(s): 9-12
Prerequisite: Algebra II

598100
Credit: 1

The AP Statistics course explores the concepts and skills according to the syllabus available through the College Entrance Examination Board. These topics include collecting and interpreting data through numerical methods, binomial and normal distribution, probability, linear correlation and regression, analysis of variance, and other descriptive statistical methods. Students should be able to transform data to aid in data interpretation and prediction and test hypotheses using appropriate statistics. Emerging technologies are incorporated into the curriculum as they become available.

Students have the opportunity to take the AP Statistics exam in May with the possibility of earning college credit.

Multivariable Calculus
Multivariable Calculus DE
Grade(s): 11-12
Prerequisite: Calculus BC – Advanced Placement (students must receive a 3 or higher on the AP exam)

583002
583000/583006
Credit: 1

Multivariable Calculus (also known as multivariate calculus) is the extension of calculus in one variable to calculus in several variables. Topics may include Euclidean 3-space, vector functions, derivatives and curvature and torsion, R^n space, surface normal, the Taylor polynomial, power and Taylor series, multivariable integration, vector function integration, and theorems by Gauss, Green, and Stokes.

Upon successful completion of taking Dual Enrollment Multivariable Calculus, students will receive 4 college credits from Northern Virginia Community College.

Science

All science classes listed are laboratory science courses. Earth Science, Biology, and Chemistry all require the Virginia Standards of Learning (SOL) tests near the end of the courses.

Students seeking a Standard diploma must complete a minimum of three science classes in two different disciplines. Students seeking Advanced Studies Diplomas must complete a minimum of four science classes in three different disciplines.

Because requirements for college admission and for specific majors in college differ greatly, students should check with colleges of interest to determine the science courses most appropriate to their goals of future education and potential college majors.

Earth Science Academic
Virtual Loudoun
Grade(s): 9-10
Prerequisite: None

640300
640V00
Credit: 1

SOL Test Earth Science is a study of the interrelationships between the Earth's composition, structure, processes, and history and its atmosphere, meteorology, oceanography, and astronomy. Various scientists and their contributions are studied.

Students interpret various maps, charts, and tables and utilize technology, including GIS and GPS to organize and analyze data. Facility in using many different kinds of maps and graphics is a major outcome of learning earth science. Students also consider costs and benefits of using the Earth's resources in problem-solving situations.

Research Earth Science Honors
Grade(s): 9-10
Prerequisite: None

640200
Credit: 1

SOL Test Earth Science is a study of the interrelationships between the Earth's composition, structure, processes, and history and its atmosphere, meteorology, oceanography, and astronomy. Various scientists and their contributions are studied.

Research Earth Science is designed to give students multiple experiences conducting research as a means to develop and reinforce earth science content knowledge and scientific thinking.

Students interpret various maps, charts, and tables and utilize technology, including GIS and GPS to organize and analyze data. Students learn the role that scientific evidence and scientific thinking plays in development of new scientific knowledge in the earth science disciplines.

Students begin to develop expertise needed to conduct in-depth scientific research. In particular, students gain the ability to collect and communicate data with descriptive statistics and graphical representations. In addition, students learn skills to use data and scientific knowledge to develop conclusions about their research questions.

All Research Earth Science students are expected to complete an in-depth, independent Science Research Investigation (SRI) as a required part of their course work.

Research Earth Science students may participate in the process leading to possible selection for participation in the Loudoun County Regional Science and Engineering Fair (RSEF).

Astronomy Virtual Loudoun **64057V**
Grade(s): 11-12 **Credit: 1**
Prerequisite: Earth Science

In Astronomy, students examine the universe and Earth's place in it. Beginning with a basic introduction to astronomy, this course covers the known universe, including the sun, stars, radiation and the electromagnetic spectrum, the larger Solar System and how astronomy influences everyday life. Through media-rich content, engaging assessments, simulations, and scientific investigations, students explore this sub-section of Earth Science throughout history and the universe.

Oceanography Virtual Loudoun **64000V**
Grade(s): 11-12 **Credit: 1**
Prerequisite: Earth Science

In this Oceanography course, students take a journey through the ocean world – the planet earth is approximately 71% ocean water. Oceanography is a discipline of science that records and describes the features of the oceans. Unlike the sciences of geology, biology, chemistry, and physics, oceanography uses a different approach and is a combination of these four sciences in the ocean realm; however, oceanography also involves engineering to develop devices that will take scientists to the depths and everywhere underwater. In this on-line course, students gain an understanding of oceanography through media-rich interactivities, videos, collaborative discussions, hands-on applications, scientific investigations, and real-world projects.

Biology Academic **650300**
Virtual Loudoun **650V00**
Grade(s): 10 **Credit: 1**
Prerequisite: None

SOL Test Students taking Biology gain detailed knowledge of living systems. Areas of study include cellular organization and processes, molecular biology, classification of organisms, genetics, evolution, and ecosystems.

Students are expected to be able to demonstrate proper use of laboratory tools. Controlled experiments are performed, and results are reported. The importance of science research is emphasized.

Research Biology Honors **650200**
Grade(s): 9-10 **Credit: 1**
Prerequisite: None

SOL Test Students taking Biology gain detailed knowledge of living systems. Areas of study include cellular organization and processes, molecular biology, classification of organisms, genetics, evolution, and ecosystems.

Research Biology is designed to give students multiple experiences conducting science research as a means to develop biology content knowledge and scientific

thinking. Students interpret biological information and utilize technology, and biological protocols to organize and analyze data.

Students learn the role that scientific evidence and scientific thinking plays in development of new scientific knowledge in the field of biology. Students are expected to collect and communicate data with descriptive statistics and graphical representations. In addition, students answer research questions using scientific data and draw conclusions using their biological content knowledge.

During Research Biology, students develop the science thinking and process skills required to generate a scientific research question and design an investigation to collect data that will answer their question. Additionally, students develop a deeper understanding of the role of inferential statistics in data analysis and drawing conclusions.

All Research Biology students are expected to complete an in-depth, independent Science Research Investigation (SRI) as a required part of their course work.

Research Biology students may participate in the process leading to possible selection for participation in the Loudoun County Regional Science and Engineering Fair (RSEF).

AP Biology **655100**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Biology Research or Academic and Chemistry Research or Academic (completed or taken concurrently).
Students must attain a passing score on the Biology SOL test.

This advanced course is a college-level, fast-paced course that follows the course outline of the College Board's AP program.

The course emphasizes cellular biology, biochemical processes or cellular respiration and photosynthesis, vertebrate anatomy and physiology, advanced genetics, evolution, plant anatomy and physiology, and ecology.

Students have the opportunity to take the AP Biology exam in May with the possibility of earning college credit.

Biology DE/AP **6551DE/655106**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Biology Research or Academic and Chemistry Research or Academic (completed or taken consecutively).
Students must attain a passing score on the Biology SOL test.

LCPS provides students the opportunity to earn college credit while fulfilling the AP Biology course requirements. Dual Enrollment/Advanced Placement Biology is a rigorous, college-level course that not only follows the course outline of the College Board's AP program but also two full semester of college biology (also fulfills college biology laboratory course requirements).

The course emphasizes cellular biology, biochemical processes of cellular respiration and photosynthesis, vertebrate anatomy and physiology, advanced genetics, evolution, plant anatomy and physiology, and ecology.

Biology DE/AP is taught by LCPS teachers who are also adjunct faculty members at participating colleges. Upon successful completion of this course, students will receive 8

college credits from either Northern Virginia Community College or Richard Bland College. Students will also have the opportunity to take the AP Biology exam in May.

Chemistry **660000**
Virtual Loudoun **660V00**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Algebra I. Students must attain a passing score on the Algebra I SOL test.

SOL Test Chemistry students develop an appreciation for the interaction between matter and energy.

Students investigate the structure, properties, and reactions of matter. Classroom study is balanced with laboratory experiences to deepen the students' understanding of Chemistry.

Analytical experimental investigations are conducted using the scientific method, and proper safety precautions are employed. Students investigate kinetic theory, the Periodic Table stoichiometry, reactions and equations, and chemical equilibrium. Students report findings of both qualitative and quantitative data using effective communication skills, correct expression of significant figures and error, and factor labeling in problem solving.

Chemistry is designed as a challenging course requiring advanced reading and writing skills.

Research Chemistry Honors **661000**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Algebra I. Students must attain a passing score on the Algebra I SOL test.

SOL Test Research Chemistry is designed to give students multiple experiences conducting science research as a means to develop chemistry content knowledge and scientific thinking. Students interpret chemical information and utilize technology and chemistry protocols to organize and analyze data. Students learn the role that scientific evidence and scientific thinking plays in development of new scientific knowledge in the field of chemistry. Students are expected to collect and communicate data with descriptive statistics and graphical representations. In addition, students answer research questions using scientific data and draw conclusions using their chemical content knowledge. During Research Chemistry, students develop the science thinking and process skills required to generate scientific research question and design an investigation to collect data that will answer their question. Additionally, students develop a deeper understanding of the role of inferential statistics in data analysis and drawing conclusion.

All Research Chemistry students are expected to complete an in-depth, independent Science Research Investigation (SRI) as a required part of their course work.

Research Chemistry students may participate in the process leading to possible selection for participation in the Loudoun County Regional Science and Engineering Fair (RSEF).

AP Chemistry **665100**
Grade(s): 11-12 **Credit: 1**
Prerequisite: Chemistry Academic or Research. Students must attain a passing score on the Chemistry SOL test.

This advanced course is a college-level, fast-paced course in Chemistry that follows the course outline of the College Board's AP Chemistry program. The course includes many extended lab procedures. In addition, such fields as organic chemistry, biochemistry, nuclear chemistry, coordination complexes, and semi-micro qualitative analysis are introduced.

Students have the opportunity to take the AP Chemistry exam in May with the possibility of earning college credit.

Chemistry DE/AP **6651DE/665106**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Biology Research or Academic and Chemistry Research or Academic (completed or taken consecutively). Students must attain a passing score on the Chemistry SOL test.

LCPS provides students the opportunity to earn college credit while fulfilling the AP Biology course requirements. Dual Enrollment/Advanced Placement Biology is a rigorous, college-level course that not only follows the course outline of the College Board's AP program but also two full semester of college biology (also fulfills college biology laboratory course requirements).

This course emphasizes the fundamental laws, theories and mathematical concepts of chemistry and atomic structure and chemical periodicity, stoichiometry, thermochemistry, organic chemistry, biochemistry, nuclear chemistry, coordination complexes, and explores semi-micro qualitative analysis.

Chemistry DE/AP is taught by LCPS teachers who are also adjunct faculty members at participating colleges. Upon successful completion of this course, students will receive 8 college credits from either Northern Virginia Community College or Richard Bland College. Students will also have the opportunity to take the AP Chemistry exam in May.

Environmental Science **656000**
Grade(s): 11-12 **Credit: 1**
Prerequisite: Two science credits (Earth Science and Biology suggested). Successful performance on two science SOL tests, to be chosen from Earth Science, Biology, and/or Chemistry.

Environmental Science provides the opportunity to synthesize information and knowledge of physics, chemistry, earth science, and biology while developing the Naturalist Intelligence. Students gain an understanding of ecological concepts including air, water, soil, biological diversity, and human impacts.

Inquiry skills are developed through fieldwork, service projects, and collaborative investigation while using appropriate technology. Because of the interdisciplinary focus of the course, students are challenged with diverse topics, rigorous reading requirements, and opportunities for written and oral presentations.

AP Environmental Science 674200
Grade(s): 11-12 **Credit: 1**
Prerequisite: Earth Science Academic or Research, and Biology Academic or Research. Students must attain a passing score on the Earth Science and Biology SOL tests.

This advanced course is a college-level, fast-paced course follows the course outline of the College Board's AP program. The goal of AP Environmental Science course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving or preventing them.

Students have the opportunity to take the AP Environmental Science exam in May with the possibility of earning college credit.

Conceptual Physics 673000
Grade(s): 10-12 **Credit: 1**
Prerequisite: Algebra I. Students must attain a passing score on the Algebra I SOL test.

Students build on basic physical science principles by in-depth exploration of the nature and characteristics of energy and its electricity and magnetism, waves and optics, and nuclear energy.

The course draws connections between the concepts of physics and many everyday applications.

Students who are awarded a credit for Conceptual Physics cannot receive an additional credit for Physics 670000.

Physics 670000
Virtual Loudoun 670V00
Grade(s): 11-12 **Credit: 1**
Prerequisite: Algebra II

This course uses a highly mathematical approach. Students learn and use many algebraic and trigonometric concepts while investigating physics content. Laboratory work includes graphical analysis. Topics include mechanics, electricity and magnetism, waves and optics, the Special Theory of Relativity, and atomic structure.

Physics is designed as a challenging course requiring advanced reading, writing, and mathematical skills.

Students who have previously completed Conceptual Physics are not awarded another science credit for taking Physics 670000.

AP Physics C: Mechanics 675100
Grade(s): 11-12 **Credit: 1**
Prerequisite: Physics
Corequisite: Calculus

This course is a college-level, fast-paced course in Physics that follows the course outline of the College Board's AP Physics program. Emphasis is placed on mechanics. Students study concepts in each of the following six content areas: kinematics; Newton's laws of motion; work, energy, and power; systems of particles and linear momentum circular motion and rotation; and oscillations and gravitation.

Pre-Calculus and Calculus are used to develop concepts and solve problems.

Students have the opportunity to take the AP Physics C exam in May with the possibility of earning college credit.

Physics DE 670010/670016
Grade(s): 11-12 **Credit: 1**
Prerequisite: Algebra II

Dual Enrollment Physics is a rigorous, college-level course that uses a highly mathematical approach (also fulfills college physics laboratory course requirements). Students learn and use many algebraic and trigonometric concepts while investigating physics content. Laboratory work includes graphical analysis. Topics include mechanics, electricity and magnetism, waves and optics, the Special Theory of Relativity, and atomic structure

DE Physics is designed as a challenging course requiring advanced reading, writing, and mathematical skills. Students who have previously completed Conceptual Physics are not awarded another science credit for taking DE Physics.

DE Physics is taught by LCPS teachers who are also adjunct faculty members at participating colleges. Upon successful completion of this course, students will receive 8 college credits. The student's grades and credits will appear on the student's official college transcript.

Geospatial Science 670201
Grade(s): 12 **Credit: 1**
Geospatial Science DE 670200/670206
Grade(s): 11-12 **Credit: 1**
Prerequisite: None

Geospatial science involves the use of geographic information systems (GIS) which integrate hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically-referenced information. In this course, GIS is used to organize, analyze, and communicate spatial-data relationships.

In the first semester, students learn about GIS tools and acquire the essential skills necessary to use GIS software and hardware effectively. These computer/software skills form the foundation of the course and are used extensively as students conduct independent research later in the course. Teacher-directed activities gradually lead to more student-directed research.

All students are expected to complete an in-depth research project as a required part of their course work during the second semester.

Students may also choose a Dual Enrollment option offered through a partnership with James Madison University's Department of Geology and Geography. Students have the opportunity to earn 6 college credits from JMU while completing the in-depth research project. The project (mandatory for all students regardless of whether they choose the Dual Enrollment option requires students to apply all skills acquired during the first semester, identify a suitable independent research topic, and demonstrate their ability to complete and present their project to school faculty, members of the GIS community, and JMU faculty and staff. To earn the 6 credit hours, students must meet or exceed the project expectations established by JMU.

This course cannot be used to satisfy one of the science requirements for the Standard or Advanced Studies Diploma.

Geospatial Science II DE **670300/670306**
Grade(s): 12 **Credit: 1**
Prerequisite: Completion of Geospatial Science and approval of JMU faculty

Students enrolled in Geospatial Science II deepen their expertise gained in Geospatial Science with an emphasis on acquiring advanced skills to capture, manage, analyze, and display geographically referenced information. These skills include: displaying and analyzing data, building and working with databases, understanding and incorporating geographic and projected coordinate systems, and using remote sensing and LiDAR data.

All students are expected to complete an in-depth research project as a required part of their course work during the year, with expectations of submitting their work into various competitions.

Geospatial Science II is a dual Enrollment course offered through a partnership with James Madison University's Department of Geology and Geography. Students have the opportunity to earn 6 college credits from JMU while completing the in-depth research project. The research project requires students to apply all skills acquired during the Geospatial Science, identify a suitable independent research topic, and demonstrate their ability to complete and present their project to school faculty, members of the GIS community, and JMU faculty and staff. To earn the 6 credit hours, students must meet or exceed the project expectations established by JMU.

This course cannot be used to satisfy one of the science requirements for the Standard or Advanced Studies Diploma.

Independent Science Research **680000**
Independent Science Research DE **680100/680106**
Grade(s): 11-12 **Credit: 1**
Prerequisite: Completion of at least two sciences in different disciplines (to be chosen from Earth Science, Biology, Chemistry, Physics, of AP Sciences)

This elective science course is intended for juniors and seniors interested in continuing their study through an independent project in science, engineering, mathematics, or computer science. Students participating in Independent Science Research (ISR) should have a significant science background prior to entering the course. ISR projects are subject to considerable peer and teacher review during all phases of development.

The focus of this course is on sustained, scientific inquiry. Students are expected to take responsibility for project development, meeting timelines, collecting data, defending procedures, and presenting results.

The instructor advises students on the research process, information sources, and contacts. Instruction is also provided on such topics as data collection and presentation, statistical interpretation of results, protocols for research, and presentation skills.

All ISR students are required to participate in the process leading to possible selection for participation in the Loudoun county Regional Science and Engineering Fair.

All students are expected to complete an in-depth research project as a required part of their course work.

Students may choose a Dual Enrollment option offered through a partnership with George Mason University College of Science. Students must have at least a 3.0 GPA in order to be considered for the Dual Enrollment section. Students choosing the Dual Enrollment option must complete a transcript release at the time of course selection. The transcript release allows GMU access to review their transcripts as part of the application process. Students have the opportunity to earn 3 college credits from GMU while completing the in-depth research project. The project (mandatory for all students regardless of whether they choose the Dual Enrollment option) requires students to identify a suitable research topic, develop an investigation design and demonstrate their ability to complete and present their project to LCPS, GMU faculty and staff and the scientific community. To earn the 3 credits, students must meet or exceed the project expectations established by GMU.

Students working toward an Advanced Studies Diploma must also complete 3 science courses from different disciplines in order to acquire the 4 required science credits (to be chosen from Earth Science, Biology, Chemistry, Physics, or AP Sciences).

Independent Science Research II DE **680200/680206**
Grade(s): 12 **Credit: 1**
Prerequisite: Completion of Independent Science Research DE

This elective science course is intended for seniors interested in either 1) continuing their study of an independent project in science, engineering, mathematics, or computer science initiated in the first Independent Science Research DE course; or 2) beginning a new independent project in science, engineering, mathematics, or computer science.

Students will participate in all aspects of sustained, scientific inquiry at a more advanced level including taking responsibility for project development, meeting timelines, collecting data, defending procedures, and presenting results. All students are expected to complete an in-depth research project as a required part of their course work.

All ISR students are required to participate in the process leading to possible selection for participation in the Loudoun County Regional Science and Engineering Fair. Students must have at least a 3.0 GPA in order to be considered for the Dual Enrollment section. Students must complete a transcript release at the time of course selection. The transcript release allows GMU access to review their transcripts as part of the Dual Enrollment application process. Students have the opportunity to earn 3 college credits from GMU while completing the in-depth research project. The project requires students to identify a suitable research topic, develop an investigation design and demonstrate their ability to complete and present their project to LCPS, GMU faculty and staff, and the scientific community. To earn the 3 credits, students must meet or exceed the project expectations established by GMU.

Students working toward an Advanced Studies Diploma must also complete 3 science courses from

different disciplines in order to acquire the 4 required science credits (to be chosen from Earth Science, Biology, Chemistry, Physics, or AP Sciences).

Social Science and Global Studies

World History/Geography to 1500

Academic 740300
Virtual Loudoun 740V00
Grade(s): 9 **Credit: 1**
Prerequisite: None

In this course, students learn to think critically about world events and societies around the globe before they year 1500. They learn to think in an organized way to understand history and to express themselves in all forms of writing, both formal and informal.

This is a course in the human history of the world that asks the following questions: What changes and events have caused people to live the way they do today? What progress have humans made? What problems have humans faced? What problems still exist today?

World History/Geography to 1500

Pre-AP 740900
Grade(s): Sequenced for Grade 9 **Credit: 1**
Prerequisite: None

Starting with the human communities of early world history, this course teaches students to think critically about large global patterns and themes and to compare human characteristics across time and geographic locations. Students learn about people in different places and environments from 8000 BCE to 1500 CE and gain understanding of the connections and differences between human beings as they study historical trends and events.

Since writing is a thinking process, all forms of writing, both formal and informal, are emphasized in this course. Students learn to understand and use primary sources as historical evidence to conduct research and produce essays.

This is a course in global history and serves as the foundation course for the 10th grade AP World History class.

World History/Geography 1500 to present

Academic 745300
Virtual Loudoun 745V00
Grade(s): 10 **Credit: 1**
Prerequisite: None

Today, individuals live in a global world that allows them to log on to a computer and talk live to other students in China, India, or South Africa. World History helps students understand how different societies developed the way they did and prepares students to live in a global, interconnected society.

In World History II, students expand their ability to think clearly and carefully about social and historical forces that have shaped the world. They compare the roles of different groups of people, including young people, in different times and places. They learn to think in an organized way to understand history and to express themselves in all forms of writing, both formal and informal.

This course assists students in the study of modern human history by posing the questions: What changes and events have caused people to live the way they do today? What progress have humans made? What problems still exist today? What solutions to these problems can individuals of today offer?

AP World History 751000
Grade(s): 10-12 (Sequenced for Grade 10) **Credit: 1**
Prerequisite: World History/Geography

Today, individuals live in a global world that allows them to log on to a computer and talk live to other students in China, India, or South Africa. AP World History helps students understand how different societies developed the way they did and prepares students to live in a global, interconnected society.

In AP World History, students expand their ability to think clearly and carefully about social and historical forces that have shaped their lives. They compare the roles of different groups of people, including young people, in different times and places.

Students learn to think in an organized way to understand history and to express themselves in all forms of writing, both formal and informal. They also have a chance to complete an inquiry-based project on a World History topic of personal interest.

This course teaches students to think critically and to develop the ability to use evidence to make arguments and draw conclusions.

Students have the opportunity to take the AP World History exam in May with the possibility of earning college credit.

United States and Virginia History

Academic 750300
Virtual Loudoun 750V70
Grade(s): 11 **Credit: 1**
Prerequisite: None

In U.S./Virginia History students expand their ability to think clearly and carefully about social and historical forces that have shaped their lives. Students compare the roles of different groups of people, including young people, in different times and regions. They learn to think in an organized way to understand history and to express themselves in all forms of writing, both formal and informal.

In this class, students are expected to develop their ability to independently use historical evidence to make arguments and draw conclusions. This course helps students improve their ability to think critically while examining how the people of America have met needs, formed communities, and developed into new, diverse, and complex societies.

United States History DE 750002/750007
Grade(s): 11 **Credit: 1**
Prerequisite: None; students must pass entrance/skills test

In Dual Enrollment U.S. History, students will develop their skills and their knowledge base to function successfully in this college-level class. Requirements for Loudoun County Public Schools and Northern Virginia Community College will have to be met by each student. The

course will have university-level academic expectations, but with hard work and the support of our teachers, students will develop to meet the challenge and will earn college credit when they complete it.

In this class, students will expand their ability to think analytically about social and historical forces that have shaped their lives. Students will address questions such as: How did a nation whose Constitution first included the 3/5 Compromise eventually come to have an African-American President in 2009?

Students will compare the roles of different groups of people in different times and regions. They will come to understand history as an investigation, and will develop their abilities to express themselves in all forms of writing, both formal and informal.

In Dual Enrollment U.S. History, students are expected to develop their ability to use historical evidence to make arguments and draw conclusions, and to improve their ability to think critically about the growth and development of the United States of America.

Upon successful completion of this full-year course, students will receive 6 college credits.

AP United States History **750100**
Grade(s): 11 **Credit: 1**
Prerequisite: None

In AP U.S. History, students expand their ability to think clearly and carefully about social and historical forces that have shaped their lives. They address questions such as: How did a nation whose Constitution first included the 3/5 Compromise eventually come to have an African-American President in 2009?

Students compare the roles of different groups of people, including young people, in different times and regions. Students continue to learn to think in an organized way to understand history and to express themselves in all forms of writing, both formal and informal.

In this class, students are expected to develop their ability to use historical evidence to make arguments and draw conclusions and to improve their ability to think critically about the formation of the United States of America.

Students have the opportunity to take the AP U.S. History exam in May with the possibility to earn college credit.

United States/Virginia Government
Academic **760300**
Virtual Loudoun **760V00**
Grade(s): 12 **Credit: 1**
Prerequisite: None

In U.S./Virginia Government, students expand their ability to think clearly and carefully about social and political forces that shape their lives. They continue to develop their thinking in an organized way for clear communication in all forms of writing, both formal and informal. They strengthen their independent ability to describe and make conclusions about government structures and policies.

This course helps improve students' ability to think critically and to examine how the people of America meet their needs for constructive political life in a diverse society.

Democracy depends on citizens paying attention and getting involved. The course prepares students to be thoughtful and active citizens of the United States.

United States/Virginia Government DE **760001/760006**
Grade(s): 12 **Credit: 1**
Prerequisite: None

In Dual Enrollment U.S. Government, students will develop their skills and their knowledge base to function successfully in this college level class. Requirements for Loudoun County Public Schools and Northern Virginia Community College will be met by each student. The course will have university-level academic expectations, but with hard work and the support of our teachers, students will develop to meet the challenge and will earn college credit when they complete it.

In this course, students expand their ability to think clearly and carefully about social and political forces that shape their lives. They continue to develop their thinking in an organized way for clear communication in all forms of writing, both formal and informal. They strengthen their independent ability to describe and make conclusions about government structures and policies. They will address and become informed about multiple issues facing our government and the processes through which it works, with the aim of becoming not only novice-scholars of democracy and republican government, but active, involved, responsible citizens.

This course helps improve students' ability to think critically and to examine how the people of America meet their needs for constructive political life in a diverse society.

Combination AP United States Government
and AP Comparative Government **762000**
Grade(s): 12 **Credit: 1**
Prerequisite: None

This course combines AP U.S. and AP Comparative Government. The College Board curricula for both courses have been woven together to make this one coherent, year-long course. Students who seek the 1.0 weight must pass the entire year-long course. Students are encouraged to take both the AP U.S. Government and the AP Comparative Government exams in May. All students are prepared for both exams.

In AP Government, students expand their ability to think clearly and carefully about the social and political forces that shape their lives. Concepts which are considered include life under a political system where people are "guilty until proven innocent" and what it would be like to have an election where each office had only one candidate; these are different interpretations of "democracy." In this class, students study the principles of government in the U.S. and the institutions and laws used to make government work. They also compare U.S. systems and laws used to make government work. They also compare U.S. systems and laws to those of other countries so students can examine how different societies define "justice" and those societies' notions of civil rights and civic responsibility.

Through the examination and comparison of government systems, students develop and improve their analytical skills, and they improve their ability to think in an organized way about very complex issues that involve many

different types of people, groups, and institutions. Students also improve their communication skills since government is a social topic. Students' analytical writing and active listening skills are significantly developed as they improve their ability to participate in political debate with fairness and respect for diverse perspectives.

Students have the opportunity to take the AP U.S. Government and Comparative Government exams in May with the possibility of earning college credit.

Economics 782700
Virtual Loudoun 782V05
Grade(s): 10-12 Credit: 0.5
Prerequisite: None

In this course, students discover that basic economic principles are at work in life every day, and an understanding of these principles helps them to make better economic choices.

Students also learn how governments and private financial institutions impact their economic choices by the decisions they make about "who gets what" in a world with scarce resources.

Students must take a one-semester course in Economics and a one-semester course in Personal Finance in order to graduate. This course fulfills the Economics portion of the one-year requirement for graduation.

Social Science and Global Studies Electives

Survey of African History 741210
Survey of African History DE 741200/741206
Grade(s): 11-12 Credit: 1
Prerequisite: None

Much of African history as people hear it consists of information beginning with when Europe began to interact with the continent of Africa, omitting much of the complete story of rich traditions, major events, and diverse cultures that stretch back far in time and across a huge land mass.

Students who want to learn about the history of this gigantic and diverse place and would like to look at history "through African eyes," should select this course. Students should be prepared to read, discuss, and write.

Successful completion of the Dual Enrollment option of this course allows students to earn 3 college credits offered through Northern Virginia Community College.

Survey of Latin American History 781100
Survey of Latin American History DE 781000/781006
Grade(s): 11-12 Credit: 1
Prerequisite: None

Latin America has more than 23 countries and even more cultural backgrounds. The largest country in Latin America does not speak Spanish but speaks Portuguese. Often, the United States' closest geographic neighbors are lumped together as one culture and considered to have only one "history." Complex histories, cultures, and social systems exist in this fascinating area, and they require serious study and examination to improve cultural understanding.

Students who want to learn about the history of this gigantic and diverse place and would like to look at history through the diverse perspectives of Latin America should select this course. They should be prepared to read, discuss, write, and learn.

Successful completion of the Dual Enrollment option of this course allows students to earn 6 college credits through Northern Virginia Community College.

AP Microeconomics/AP Macroeconomics 782000
Grade(s): 11-12 Credit: 1
Prerequisite: None

Students wishing to fulfill the Economics and Personal Finance graduation requirement with this course must compete both AP components: Micro and Macro.

The microeconomic component of this AP course provides students with a thorough understanding of the principles of economics that apply to individual decision makers, both consumers and producers, within the economic system. The primary focus of the course is to help individuals develop an understanding of markets and the role the government plays promoting greater efficiency and equity in the economy.

The macroeconomic component of this course provides students with a thorough understanding of the principles of economics as they apply to the economic system as a whole. This portion of the course focuses on national income and price-level determination and develops students' familiarity with economic performance measures, the financial sector, economic growth and stabilization policies, and international economics.

In this course, students are required to think critically about the complex issues surrounding a world with limited resources.

Students have the opportunity to take the AP Micro and Macro Economics exam in May with the possibility of earning college credit.

Global Social Issues 775000
Grade(s): 11-12 Credit: 0.5
Prerequisite: None

In Global Social Issues, students learn that people on this planet have numerous differences yet face issues and challenges which are connected. Issues that may seem to impact only one area may actually impact other people and societies across the globe.

In this course, students study how humans behave and interact with each other. In some instances, people and nations work together on environmental concerns, and in others, people and nations work at cross-purposes on the environment. Furthermore, with issues such as women's rights, students discover a wide spectrum of views and approaches according to a particular society's culture and history.

AP Human Geography
Grade(s): 11-12
Prerequisite: None

741100
Credit: 1

AP Human geography helps students analyze the world and their relationship to it. Students learn to look for geographic causes for events in different regions to compare geographic features and their effects on human life, and to see how their lives are connected to and affected by human and geographic conditions all over the globe. In this course, students write, read, discuss, and present issues of global and local importance. Students also learn about an important tool for Human Geography: GIS software. AP Human Geography prepares individuals to be part of the solution to the challenges facing humanity on Earth in the 21st Century.

Students have the opportunity to take the AP Human Geography exam in May with the possibility of earning college credit.

Modern International Relations
Grade(s): 11-12
Prerequisite: None

784700
Credit: 0.5

In this course, students examine the ways in which people and nations relate to each other and develop their own ideas about how the new global situation should be addressed. Students in this course must closely read and listen to the news, too, because people are moving and taking actions all the time in today's world, and lives are affected by people or events from beyond the national borders.

This course assists students in learning how they can contribute to the solutions to international problems, and develop their own abilities to function on the increasingly interconnected globe.

Psychology
Virtual Loudoun
Grade(s): 11-12
Prerequisite: None

786700
786V00
Credit: 0.5

Psychology provides students with ideas about how to address many questions regarding human behavior. Psychologists provide biological, emotional, and situational reasons as answers to questions about human behavior. By studying those reasons, students gain a better understanding of why people do what they do and develop the ability to generate their own answers.

Psychology helps students think about human behavior in an organized way.

AP Psychology
Grade(s): 11-12
Prerequisite: None

787100
Credit: 1

Psychologists study all aspects of human behaviors: those that humans have in common with animals and those that humans do not, and those that range from peace-making to the microscopic functioning of a nerve cell. Students become psychologists in this course and expand their minds to analyze human behavior in methodical, organized, large-scale, small-scale, inquiry-based approaches. Students need to work hard to read about, understand, write about, discuss, and explain the ways humans behave.

Class participants study how humans learn, how humans inherit traits from their parents, how humans act in groups, why humans have emotions, and how humans sometimes engage in behaviors that are destructive.

Students have the opportunity to take the AP Psychology exam in May with the possibility of earning college credit.

The World of Ideas
Grade(s): 11-12
Prerequisite: None

741300
Credit: 0.5

This course focuses on three main philosophical questions:

- Is there a purpose to life?
- What is the definition of a human being?
- How can human beings know anything for sure?

In this course, students explore their answers to these questions by studying the answers given to them by a diversity of cultures and traditions across the globe.

Students who take this course will explore the world of ideas and may develop some ideas about their place in the universe, or may generate many more questions they would like to explore.

World Religions
Grade(s): 11-12
Prerequisite: None

741400
Credit: 0.5

Teenagers of Aborigine heritage in Australia have traditionally gone through a "rite of passage" called a "Walkabout." They are meant to have a spiritual awakening in the Outback by surviving in the desert without supplies, and without even clothing, for one to two weeks. Students' own backgrounds may call for a "rite of passage" for them. Why do religions have rites of passages and other ceremonies? Why do they have different types of ceremonies?

In this course, students explore questions like those above and examine and compare the practices, faiths, and literature of the major religions in the world today. They do so with readings, videos, creative and analytical writing, and discussion. The many beautiful, meaningful, and inspirational forms of religion in the world explain much about the world views and cultures of the diversity of people living on the globe today. Students who take this course improve their understanding of the people who share this planet with them.

World Languages and Cultures

All public Virginia colleges and universities accept American Sign Language as fulfillment of the world language entrance requirement; however, some Virginia private colleges and out-of-state institutions of higher education do not accept American Sign Language courses for world language credit.

American Sign Language I (ASL) **380000**
Grade(s): 9-12 **Credit: 1**
Prerequisite: None

Students learn basic ASL vocabulary and acquire knowledge of the manual alphabet. They also study the history of American Sign Language and the Deaf culture. Expressive and receptive language skills are practiced within the context of meaningful and experiential activities related to home, school, and community environments.

American Sign Language II **382000**
Grade(s): 10-12 **Credit: 1**
Prerequisite: ASL I

Building on the rudiments learned in ASL I, students expand their vocabulary and increase their proficiency in expressive and receptive conversational skills using more complex grammatical structures.

Students continue their study of Deaf heritage and culture and are encouraged to interact with Deaf people.

American Sign Language III **383000**
Grade(s): 11-12 **Credit: 1**
Prerequisite: ASL II

Through spiraling of concepts, structures, and functions acquired in ASL II, students improve their skills in functional contexts.

Students analyze authentic ASL literature such as storytelling, folklore, poetry, and drama. The study of the evolution of ASL and the maintenance of interpersonal relations with the Deaf community are an integral part of ASL III.

American Sign Language IV Honors **384800**
Grade(s): 11-12 **Credit: 1**
Prerequisite: ASL III or teacher recommendation

In this advanced level course, students develop communicative and interactive competencies in the language through the use of major ASL grammatical features and expand knowledge of the Deaf community culture. The course will focus on ASL literature by incorporating ASL story analysis and storytelling techniques such as space, role-shifting, classifiers, idiomatic expressions, and non-manual signals. Culture is learning through readings and classroom discussions on global themes and topics. Contact with the Deaf community is required once per quarter to enhance linguistic and cultural knowledge.

American Sign Language DE **384500/384506**
Grade(s): 11-12 **Credit: 1**
Prerequisite: ASL III or teacher recommendation

In this advanced level course, students develop communicative and interactive competencies in the language through the use of major ASL grammatical features and expand knowledge of the Deaf community culture. The course will focus on ASL literature by incorporating ASL story analysis and storytelling techniques such as space, role-shifting, classifiers, idiomatic expressions, and non-manual signals. Culture is learned through readings and classroom discussions on global themes and topics. Contact with the Deaf community is required once per quarter to enhance linguistic and cultural knowledge. Upon successful completion of this course, students can earn 3 college credits from Northern Virginia Community College.

French I **340000**
Virtual Loudoun **34100V**
Grade(s): 7-12 **Credit: 1**
Prerequisite: None

Students develop the ability to communicate about themselves and their immediate environment in French at the beginner-novice level by production basic language structures. This communication is evidenced in all four language skills: listening, speaking, reading, and writing. Listening and reading facilitate the ability to communicate orally and in writing.

French II **342000**
Virtual Loudoun **34200V**
Grade(s): 8-12 **Credit: 1**
Prerequisite: French I

Students continue to develop proficiency in French at the intermediate-novice level in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing.

Students learn to function in real-life situations using more complex sentences and language structures. They also read material on familiar topics and produce short writing samples.

French III **343000**
Virtual Loudoun **34300V**
Grade(s): 9-12 **Credit: 1**
Prerequisite: French II

Students continue to develop and refine their proficiency in French at an advanced-novice level, integrating all four language skills: listening, speaking, reading, and writing. Emphasis is placed on the ability to interact orally and in writing.

Students communicate using more complex language structures on a variety of topics, moving from concrete to more abstract concepts. At this level, students comprehend authentic materials to which they listen and read and are able to identify significant details when the topics are familiar.

French IV Honors **344000**
Grade(s): 10-12 **Credit: 1**
Prerequisite: French III

Students develop more sophisticated communication skills in French at an intermediate-low level integrating all four language skills: listening, speaking, reading, and writing. Emphasis is placed on the ability to interact orally and in writing. Authentic language sources are emphasized at this level.

Students communicate using more complex language structures and express abstract ideas with reasonable fluency. Students are able to create and listen with understanding to reports and presentations. They are also able to describe, summarize and discuss selected AP global themes and topics.

French V Honors **345000**
Grade(s): 10-12 **Credit: 1**
Prerequisite: French IV Honors

Students in French V study AP global themes and topics using more sophisticated communication at an intermediate-mid level in all four language skills: listening, speaking, reading, and writing. Emphasis is placed on the ability to interact, persuade, compare, and contrast orally and in writing.

Students study literary words as well as current and historical events representing the various geographical regions on the world where French is spoken.

AP French Language and Culture **345100**
Grade(s): 10-12 **Credit: 1**
Prerequisite: French V Honors

AP French is holistically designed to offer students a proficiency-based, rigorous college-level experience. This culminating course in French increases student potential in interpretive, interpersonal, and presentational modes in the six global course themes: Global Challenges; Personal and Public Identities; Contemporary Life; Science and Technology; Beauty and Aesthetics; and Families and Communities.

Students build greater fluency in their language skills by developing comprehension and comprehensibility, a rich vocabulary, language control, communication strategies, and cultural awareness. Students are expected to communicate cultural awareness. Students are expected to communicate entirely in French as they compare and contrast French cultures with their personal communities and connect their studies with other disciplines in their high school curricula.

Students have the opportunity to take the AP French exam in May with the possibility of earning college credit.

German I **370000**
Virtual Loudoun **37100V**
Grade(s): 7-12 **Credit: 1**
Prerequisite: None

Students develop the ability to communicate about themselves and their immediate environment in German at the beginner-novice level by producing basic language structures. This communication is evidenced in all

four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing.

German II **372000**
Virtual Loudoun **37200V**
Grade(s): 8-12 **Credit: 1**
Prerequisite: German I

Students continue to develop proficiency in German at the intermediate-novice level in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing.

Students learn to function in real-life situations using more complex sentences and language structures. They also read material on familiar topics and produce short writing samples.

German III **373000**
Grade(s): 9-12 **Credit: 1**
Prerequisite: German II

Students continue to develop and refine their proficiency in German at an advanced-novice level, integrating all four language skills: listening; speaking; reading; and writing. Emphasis is placed on the ability to interact orally and in writing.

Students communicate using more complex language structures on a variety of topics, moving from concrete to more abstract concepts. At this level, students comprehend authentic materials to which they listen and read and are able to identify significant details when the topics are familiar.

German IV Honors **374000**
Grade(s): 10-12 **Credit: 1**
Prerequisite: German III

Students develop more sophisticated communication skills in German at an intermediate-low level, integrating all four language skills: listening; speaking; reading; and writing. Emphasis is placed on the abilities to interact orally and in writing. Authentic language sources are used at this level.

Students communicate using more complex language structures and express abstract ideas with reasonable fluency. Students are able to create and listen with understanding to reports and presentations in German. They are also able to describe, summarize, and discuss selected AP global themes and topics.

German V Honors **375000**
Grade(s): 10-12 **Credit: 1**
Prerequisite: German IV Honors

Students study selected AP global themes and topics using more sophisticated communication at an intermediate-mid level in all four language skills: listening, speaking, reading, and writing. Emphasis is placed on the ability to interact, persuade, compare, and contrast orally and in writing.

Students study literary words as well as current and historical events representing the various geographical regions on the world where German is spoken.

AP German Language and Culture 375100
Grade(s): 10-12 Credit: 1
Prerequisite: German V Honors

AP German is holistically designed to offer students a proficiency-based, rigorous college-level experience. This culminating course in German increases student potential in interpretive, interpersonal, and presentational modes in the six global course themes: Global Challenges; Personal and Public Identities; Contemporary Life; Science and Technology; Beauty and Aesthetics; and Families and Communities.

Students build greater fluency in their language skills by developing comprehension and comprehensibility, a rich vocabulary, language control, communication strategies, and cultural awareness. Students are expected to communicate cultural awareness. Students are expected to communicate entirely in German as they compare and contrast German cultures with their personal communities and connect their studies with other disciplines in their high school curricula.

Students have the opportunity to take the AP German exam in May with the possibility of earning college credit.

Latin I 350000
Virtual Loudoun 35100V
Grade(s): 7-12 Credit: 1
Prerequisite: None

This course explores basic Latin grammar and vocabulary and develops the skills necessary to read elementary Latin texts. The linguistic nature of the course is supplemented by a general overview of Greco-Roman civilization, including history, daily life and mythology. English derivatives are emphasized to show the influence of Latin upon the English language and to contribute to the growth of each student's personal vocabulary.

Latin II 352000
Virtual Loudoun 35200V
Grade(s): 8-12 Credit: 1
Prerequisite: Latin I

Students review material from Latin I, learn intermediate grammar and vocabulary, and continue to develop skills necessary to read Latin texts. They expand their understanding of Greco-Roman civilization and English derivatives.

Latin III 353000
Grade(s): 9-12 Credit: 1
Prerequisite: Latin II

Students learn advanced grammatical concepts and vocabulary. They read stories of increasing length and complexity that pertain to the expansion of the Roman Empire. The study of Greco-Roman culture and English derivatives continues.

Latin IV Honors 354000
Grade(s): 10-12 Credit: 1
Prerequisite: Latin III

This course introduces students to the reading and interpretation of authentic Latin literature. Students learn the basics of Latin poetry including scansion and literary

devices. Emphasis is placed upon roman culture, roman history, English derivatives, and Latin grammar relevant to the literary text.

Latin V Honors 355000
Grade(s): 10-12 Credit: 1
Prerequisite: Latin IV Honors

Latin V pairs a review of Latin grammar and vocabulary with the reading of authentic passages from various Roman authors in preparation for the AP Latin course. It provides students with the skills necessary to translate the authentic text, read aloud Latin verse in meter, analyze stylistic technique, and interpret the author's intent through word choice, syntax, and mythological and historical allusions. An exploration of the pertinent history and mythology is also incorporated into this class.

Students continue to broaden vocabulary through the study of English derivatives.

Latin V DE 356000/356006
Grade(s): 10-12 Credit: 1
Prerequisite: Latin IV Honors

Latin V Dual Enrollment pairs a review of Latin grammar and vocabulary with the reading of authentic passages from various Roman authors. It provides students with the skills necessary to translate the authentic text, read aloud Latin verse in meter, analyze stylistic technique, and interpret the author's intent through word choice, syntax, and mythological and historical allusions. An exploration of the pertinent history and mythology is also incorporated into this class.

Students continue to broaden vocabulary through the study of English derivatives. Upon successful completion of this course, students can earn 6 college credits from Northern Virginia Community College.

AP Latin 359100
Grade(s): 10-12 Credit: 1
Prerequisite: Latin V Honors

This course follows the AP Latin syllabus for Vergil's *Aeneid* and Caesar's *Gallic War*. Students read and translate as literally as possible all required passages and read selected portions of *Aeneid* and *Gallic War* in English. The course examines the historical, social, cultural, and political context of the works and provides frequent practice in reading Latin at sight.

Students are also given frequent opportunities to practice written analysis and critical interpretation, including appropriate references to the use of stylistic and metrical techniques by Vergil and Caesar.

Students have the opportunity to take the AP Latin exam in May with the possibility of earning college credit.

Mandarin Chinese I 321000
Virtual Loudoun 396V00
Grade(s): 9-12 Credit: 1
Prerequisite: None

Students are introduced to the Chinese language and culture in this course. The basic objectives are to help each student attain an acceptable degree of proficiency in the four skills of listening, speaking, reading, and writing, and to present the language within the context of the

contemporary Chinese culture. Chinese characters are introduced systematically as they are related to the listening/speaking activities conducted.

Mandarin Chinese II 331000
Virtual Loudoun 397V00
Grade(s): 10-12 **Credit: 1**
Prerequisite: Mandarin Chinese I

Students continue to build proficiency in the Chinese language and expand their understanding of culture in this course. The basic objectives are to help each student continue to develop an acceptable degree of proficiency in the four skills of listening, speaking, reading, and writing, and to thematically present the language within the context of the contemporary Chinese culture. Chinese characters are reviewed and expanded systematically as they are related to the listening/speaking activities conducted.

Mandarin Chinese III 334000
Grade(s): 11-12 **Credit: 1**
Prerequisite: Mandarin Chinese II

Students increase proficiency in the basics of Chinese in this course. The objectives of this course are to review and amplify structures previously taught and introduce more advanced vocabulary and structures through the four skills of listening, speaking, reading, and writing, and to present the language within the context of the contemporary Chinese Culture. Chinese characters are reviewed and more characters introduced systematically as they relate to the listening/speaking activities conducted throughout the course.

Spanish for Fluent Speakers I 367000
Grade(s): 7-12 **Credit: 1**
Prerequisite: Placement Test

Spanish for Fluent Speakers I is designed to meet the needs of students whose primary language is Spanish and who have minimal or no formal instruction in the language. While developing their current competencies in formal speaking and listening, students focus on the acquisition of comparable competencies in reading and writing. Upon successful completion of the course, students may continue in the Spanish for Fluent Speakers sequence.

Spanish for Fluent Speakers II 367300
Grade(s): 8-12 **Credit: 1**
Prerequisite: Spanish for Fluent Speakers I or Placement Test

Spanish for Fluent Speakers II is designed to increase proficiency in reading and writing of students whose primary language is Spanish. Major grammar points are reviewed and finer points of grammar are studied, placing emphasis on style and structural accuracy. Comprehension and communication skills are refined through the reading and discussion of selections written by classic and modern authors in a variety of genres. Upon successful completion of this course, students may continue in the Spanish for Fluent Speakers series.

Spanish for Fluent Speakers III Honors 367500
Grade(s): 9-12 **Credit: 1**
Prerequisite: Spanish for Fluent Speakers II or Placement Test

Spanish for Fluent Speakers III is designed to further refine fluent speakers' literacy and proficiency skills. Students read from a variety of genres representing numerous Spanish speaking countries. Students discuss current themes and events including world views, global challenges, and students as citizens of a global society.

This course prepares students to enroll in AP Spanish.

Upon successful completion of this course, the student may continue in the traditional Spanish sequence in Spanish V Honors, Spanish V DE, or AP Spanish.

Spanish I 360000
Virtual Loudoun 36100V
Grade(s): 7-12 **Credit: 1**
Prerequisite: None

Students develop the ability to communicate about themselves and their immediate environment in Spanish at the beginner-novice level, producing basic language structures. This communication is evidenced in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing.

Spanish II 362000
Virtual Loudoun 36200V
Grade(s): 8-12 **Credit: 1**
Prerequisite: Spanish I

Students continue to develop proficiency in Spanish at the intermediate-novice level in all four language skills: listening; speaking; reading; and writing. Listening and reading facilitate the ability to communicate orally and in writing. Students learn to function in real-life situations using more complex sentences and language structures. They also read material on familiar topics and produce short writing samples.

Spanish III 363000
Virtual Loudoun 36300V
Grade(s): 9-12 **Credit: 1**
Prerequisite: Spanish II

Students continue to develop and refine their proficiency in Spanish at an advanced-novice level, integrating all four language skills: listening; speaking; reading; and writing. Emphasis is placed on the ability to interact orally and in writing.

Students communicate using more complex language structures on a variety of topics, moving from concrete to more abstract concepts. At this level, students comprehend authentic materials to which they listen and read and are able to identify significant details when the topics are familiar.

Spanish IV Honors **364000**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Spanish III

Students develop more sophisticated communication skills in Spanish at an intermediate-low level, integrating all four language skills: listening; speaking; reading; and writing. Emphasis is placed on the abilities to interact orally and in writing. Authentic language sources are used at this level.

Students communicate using more complex language structures and express abstract ideas with reasonable fluency. Students are able to create and listen with understanding to reports and presentations in Spanish. They are also able to describe, summarize, and discuss selected AP global themes and topics.

Spanish V Honors **365000**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Spanish IV Honors or Spanish for Fluent Speakers III Honors

Students in Spanish V study selected AP global themes and topics using more sophisticated communication at an intermediate-mid level in all four language skills: listening, speaking, reading, and writing. Emphasis is placed on the abilities to interact, persuade, compare, and contrast orally and in writing.

Students also study literary works as well as current and historical events representing the various geographical regions of the world where Spanish is spoken.

AP Spanish Language and Culture **365100**
Grade(s): 10-12 **Credit: 1**
Prerequisite: Spanish V honors

AP Spanish is holistically designed to offer students a proficiency-based, rigorous college-level experience. This culminating course in Spanish increases student potential in interpretive, interpersonal, and presentational modes in the six global course themes: Global Challenges; Personal and Public Identities; Contemporary Life; Science and Technology; Beauty and Aesthetics; and Families and Communities.

Students build greater fluency in their language skills by developing comprehension and comprehensibility, a rich vocabulary, language control, communication strategies, and cultural awareness. Students are expected to communicate cultural awareness. Students are expected to communicate entirely in Spanish as they compare and contrast Spanish cultures with their personal communities and connect their studies with other disciplines in their high school curricula.

Students have the opportunity to take the AP Spanish exam in May with the possibility of earning college credit.

Spanish Literature and Culture
Advanced Placement **365200**
Grade(s): 11-12 **Credit: 1**
Prerequisite: Spanish V Honors

The AP Spanish Literature and Culture course uses a thematic approach to introduce students to representative texts (short stories, novels, poetry, and essays) from Peninsular Spanish, Latin American, and United States

Hispanic literature. Students develop proficiencies across the full range of communication modes (interpersonal, presentational, and interpretive), thereby honing their critical reading and analytical writing skills. Literature is examined within the context of its time and place, as students reflect on the many voices and cultures present in the required readings.

The course also includes a strong focus on cultural connections and comparisons, including exploration of various media (e.g., art, film, articles, literary criticism).

Other Courses Offered

Advanced Placement Seminar **099900**
Grade(s): 10-12 **Credit: 1**
Prerequisite: None

This foundational course provides students with opportunities to think critically and creatively, research, explore, pose solutions, develop arguments, collaborate, and communicate using various media. Students explore real-world issues through a variety of lenses and consider multiple points of view to develop deep understanding of complex issues as they make connections between these issues and their own lives.

This elective course is available to students in grades 10-12 and could be taught in a variety of disciplines. This course is the prerequisite to AP Research, which will be offered in the 2019-2020 school year.

AVID 1 **092000**
Grade(s): 9 **Credit: 1**
Prerequisite: None

Available at DHS, LCHS, PVHS, and THS only

This course prepares students for entrance into colleges and universities. The course emphasizes critical reading strategies, analytical writing, collaborative discussion strategies, tutorial inquiry study groups, preparation for college entrance and placement exams, college study skills and test taking strategies, note taking and research. Students also develop time management and organization skills as part of the AVID 1 course.

AVID 2 **093000**
Grade(s): 10 **Credit: 1**
Prerequisite: AVID 1 recommended

Available at DHS, LCHS, PVHS, and THS only

This course prepares students for entrance into colleges and universities. The course emphasizes critical reading strategies, analytical writing, collaborative discussion strategies, tutorial inquiry study groups, preparation for college entrance and placement exams, college study skills and test taking strategies, note taking and research. Students also investigate college and career options as part of the AVID 2 course.

AVID 3
Grade(s): 11
Prerequisite: AVID 2

094000
Credit: 1

Available at DHS, LCHS, PVHS, and THS only

This course prepares students for entrance into colleges and universities. The course emphasizes critical reading strategies, analytical writing, collaborative discussion strategies, tutorial inquiry study groups, preparation for college entrance and placement exams, college study skills and test taking strategies, note taking and research. Students also investigate the college application process and develop a portfolio of sample college applications and sample essays.

AVID 4
Grade(s): 12
Prerequisite: AVID 3

095000
Credit: 1

Available at DHS, LCHS, PVHS, and THS only

This course prepares students for entrance into colleges and universities. The course emphasizes critical reading strategies, analytical writing, collaborative discussion strategies, tutorial inquiry study groups, preparation for college entrance and placement exams, college study skills and test taking strategies, note taking and research. Students also finalize college application requirements, with a particular emphasis on investigating options for financial aid. In addition, students conduct and present a culminating research project.

Basic Skills
Grade(s): 9-12
Basic Skills
Grade(s): 9-12

080040
Credit: 1
080045

**Credit: 0.5 per semester,
 may be taken two semesters per year**

Prerequisite: None

Graded as a Pass or Fail, not used in Cumulative Grade Point Average

Basic Skills is an elective course for special education students receiving resource or self-contained services for a full period and who require more intensive work on identified needs as noted in the Individualized Education Plan (IEP).

Students are introduced to a variety of strategies and techniques to enable them to better achieve in school. Strategies and techniques may include time management, study skills, note taking, and self-advocacy, based on the student's needs. The teacher may use one or more content areas (e.g., language arts, mathematics, science) to teach students how to adapt these strategies and techniques to different situations.

Because this is a developmental course, Basic Skills may be retaken for credit each semester for up to four years.

Career Pathways
Grade(s): 10-12
Prerequisite: None

080570
Credit: 1

Career Pathways is an elective course for students with Individualized Educational Plans (IEP). The course focuses on goal setting and self-determination as they relate to transitioning from secondary to post-secondary success through use of the Life Centered Career Education Curriculum. Students may participate in school-based or community work experiences as a part of this course.

The course is taught based upon individual student needs and interests; therefore, it may be taken more than once for consecutive, elective credit.

SAT Preparation
Grade(s): 10-12
Prerequisite: None

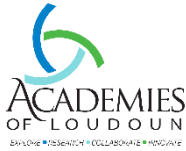
071000
Credit: 0.5

This course is designed to help students spend concentrated time and effort understanding the patterns and strategies needed to understand and prepare for the SAT Reasoning Test, a nationally standardized college admissions test.

Instruction focuses on the test design, practice, analysis of results, and instruction in areas of weakness. Three main areas of study include critical reading, mathematical reasoning, and writing.

The course is graded as a "pass/fail" elective, based on the student's active participation in the class and completion of assignments.

Priority is given to seniors for the first semester and to juniors during second semester. Interested sophomores may have access if space permits.



Academies of Loudoun

The mission of the Academies of Loudoun is to empower students to **explore, research, collaborate, innovate**, and to make meaningful contributions to the world in the fields of **science, technology, engineering and mathematics**. Conceptualized over a decade ago, the Academies of Loudoun project will be completed by the start of the 2018-19 academic year. Site improvements began in February 2016, and involve the construction of a new three-story, 300,000+ square-foot high school campus, on a 119-acre parcel owned by LCPS.

Academy of Engineering & Technology

The Academy of Engineering & Technology (AET) program strives to provide academic STEM (Science, Technology, Engineering and Mathematics) pathways for students to engage in the study of engineering, information technology, and entrepreneurship. Students in the AET program will develop their creative and enterprising capacities, engage in engineering and research projects, and have the opportunity to pursue a well-rounded high school experience. A student at AET acquires the skills to ask sophisticated scientific questions and conduct research and experimentation; to explore the connections between STEM and the real world through innovation challenges; to read, write, and communicate at a level that is required of university students; and to develop perspectives to assess the impact of scientific advancements on society.

Academy of Science

The Academy of Science (AOS) program strives to provide students the opportunity to deeply engage in mathematics, science, and research and to promote creativity and innovation through problem solving and collaboration. Students in the AOS program acquire the skills to ask sophisticated scientific questions and conduct research and experimentation; to explore the interconnections between the sciences, math, and the humanities; to read, write, and communicate at a level that is required of university students; and to develop perspectives to assess the impact of scientific advancements on society.

Monroe Advanced Technical Academy

The Monroe Advanced Technical Academy (MATA) programs strive to provide significant and relevant learning in Career & Technical Education (CTE) which allows students to explore and innovate while preparing for 21st century college and careers.

MATA 1-year programs

Administration of Justice
Auto Collision Repair
Auto Service Technology
Biotechnology
Building Construction
CISCO
Culinary Arts
Emergency Medical Technician
Environmental Plant Science
Firefighter
Graphic Communications
Introduction to Health & Medical Sciences (10th grade only)
Hospitality and Tourism
HVAC
Masonry
Television Production and
Moviemaking
Welding
Veterinary Science

MATA 2-year programs

Computer Integrated Engineering and Design
Computer and Digital Animation
Cosmetology
Cybersecurity
Medical Laboratory Technology
Practical Nursing
Pharmacy Technology
Radiology Technology

AET Mathematics Courses

AET Integrated Mathematics I **566100**
Grade(s): 9 **Credit: 1**
Prerequisite: None

This course is the first in a series of integrated math courses (two-year sequence of courses) designated for AET students. Students study Algebra II with Trigonometry and Math Analysis as an integrated progression of math topics and learn content typically taught in these courses. The course is inquiry-based with much of the content learned through investigation and problem based exercises.

AET Integrated Mathematics II **566200**
Grade(s): 10 **Credit: 1**
Prerequisite: AET Integrated Math I

SOL Test This course is the second in a series of integrated math courses (two-year sequence of courses) designed for AET students. Students study Algebra II with Trigonometry and Math Analysis as an integrated progression of math topics and learn content typically taught in these courses. The course is inquiry-based with much of the content learned through investigation and problem based exercises. This course prepares students to take an AP Calculus course the following year.

AET AP Calculus AB **566300**
Grade(s): 11-12 **Credit 1**
Prerequisite: AET Integrated Math II or Math Analysis

AET AP Calculus AB explores the topics of limits/continuity, derivatives, and integrals. These ideas are examined using a multi-layered approach including the verbal, numerical, analytical, and graphical analysis of polynomial, rational, trigonometric, exponential, and logarithmic functions and their inverses. The student is expected to relate the connections among these approaches. Students are also required to synthesize knowledge of the topics of the course to solve applications that model physical, social, and/or economic situations. These applications emphasize derivatives as rates of change, local linear approximations, optimizations and curve analysis, and integrals as Riemann sums, area of regions, volume of solids with known cross sections, average value of functions, and rectilinear motions. Emerging technologies are incorporated into the curriculum as they become available.

Students have the opportunity to take the AP Calculus AB exam in May with possibility of earning college credit.

AET AP Calculus BC **566400**
Grade(s): 11-12 **Credit: 1**
Prerequisite: AET Integrated Math II or Math Analysis

AET AP Calculus BC is intended for students who have a thorough knowledge of analytic geometry and elementary functions in addition to college-preparatory algebra, geometry, and trigonometry. Although all of the elements of the AP Calculus AB course are included, the course provides a more rigorous treatment of these introductory calculus topics. The course also includes the

development of the additional topics required by the College Entrance Examination Board in its syllabus for AP Calculus BC. Among these are parametric, polar, and vector functions; the rigorous definition of limit; advanced integration techniques; Simpson's Rule; length of curves; improper integrals; Hooke's Law; and the study of sequences and series. The use of the graphing calculator is fully integrated into instruction and students are expected to confirm and interpret results of problem situations that are solved using available technology. Emerging technologies are incorporated into the curriculum as they become available.

Students have the opportunity to take the AP Calculus BC exam in May with the possibility of earning college credit.

AET Science Courses

AET Integrated Science I **667100**
Grade(s): 9 **Credit: 1**
Prerequisite: None

This course is the first in a series of integrated science courses (two-year sequence of courses) designed for AET students. Students study the physical sciences, physics and chemistry, as an integrated progression of science topics and learn content typically taught in these courses. The course is inquiry-based with much of the content learned through laboratory exercises. Students take the Chemistry SOL test during the AET Integrated Science course progression. AET Integrated Science I and II prepare students for the advanced study of physical sciences in the junior and senior years. This course is required for all AET Engineering and Entrepreneurship freshman.

AET Integrated Science II **667200**
Grade(s): 10 **Credit: 1**
Prerequisite: AET Integrated Science I

SOL Test This course is the second and final in the series of integrated science courses (two-year sequence of courses) designed for AET students. Students study the physical sciences, physics and chemistry, as an integrated progression of science topics and learn content typically taught in these courses. The course is inquiry-based with much of the content learned through laboratory exercises. Students take the Chemistry SOL test during the AET Integrated Science course progression. AET Integrated Science I and II prepare students for the advanced study of physical sciences in the junior and senior years. This course is required for all AET Engineering and Entrepreneurship sophomores.

AET Physics **667300**
Grade(s): 9 **Credit: 1**
Prerequisite: None

AET physics is a rigorous academic course preparing students for college level work. The course is inquiry-based with much of the content learned through laboratory exercises. Algebra skills are used to develop concepts and solve problems.

AET Research Chemistry 661500
Grade(s): 10 Credit: 1
Prerequisite: None

The AET Research Chemistry course is one of the science courses required for all AET IT pathway students. AET Research Chemistry is a rigorous academic course preparing students for college level work. Students have multiple experiences conducting science research as a means to develop chemistry content knowledge and scientific thinking. Students interpret chemical information and utilize technology, and chemistry protocols to organize and analyze data. Students learn the role that scientific evidence and scientific thinking plays in development of new scientific knowledge in the field of chemistry. Students are expected to collect and communicate data with descriptive statistics and graphical representations. In addition, students answer research questions using scientific data and draw conclusions using their chemical content knowledge. During Research Chemistry, students develop the science thinking and process skills required to generate a scientific research question and design an investigation to collect data that will answer their question. Additionally, students develop a deeper understanding of the role of inferential statistics in data analysis and drawing conclusions.

AET AP Computer Science A 668000
Grade(s): 10 Credit: 1
Prerequisite: AET Information Technology & Computer Science

This course is the second in the series of computer science courses designed for AET IT pathway students. This is a college-level, fast-paced course that completes the course outline of the College Board's AP Computer Science program. The course emphasizes many extended lab procedures and has elements of research and design. Course content includes sorting algorithms (selection, insertion, merge, quick and heap) and data structures (arrays, recursion, linked lists, stacks, queues, trees, sets, maps and graphs). The programming language is JAVA.

Students have the opportunity to take the AP Computer Science exam in May with the possibility of earning college credit.

AET AP Physics C: Mechanics 671400
Grade(s): 11 Credit: 1
Prerequisite: AET Integrated Science II

This course is a college-level, fast-paced course that follows the course outline of the College Board's AP Physics program. Emphasis is placed on mechanics. Students study concepts in each of the following six content areas: kinematics, Newton's laws of motion; work, energy, and power; systems of particles and linear momentum; circular motion and rotation; and oscillations and gravitation. Pre-calculus and Calculus skills are used to develop concepts and solve problems.

Students have the opportunity to take the AP Physics exam in May with the possibility of earning college credit.

AET Engineering Studies III, Junior Research 855103
Grade(s): 11 Credit: 1
Prerequisite: AET Engineering Studies II

This 11th grade engineering course continues to build on the knowledge and skills obtained in AET Engineering I and II. Students explore engineering through a series of problem based labs that focus on the following engineering disciplines: Aerospace, Civil, Electrical & Mechanical. Throughout the year, students will have the opportunity to complete labs as individuals and in collaborative in teams. High priority will be given to microcontroller programming, prototyping, industrial design, and robotics. In addition, students will learn the critical steps needed to plan and implement a thorough research project.

AET Computer Science Investigations, Junior Research 668100
Grade(s): 11 Credit: 1
Prerequisite: AET AP Computer Science

The 11th grade Information Technology elective continues to build on the coding skills and knowledge obtained in AET Information Technology & Computer Science and AET AP Advanced Computer Science. With a strong computer science background, student's will explore the quickly growing fields of Artificial Intelligence, Machine learning, & Mobile/Web Application Development.

Throughout the year, students will have the opportunity to complete multiple labs and problem sets as individuals and in collaborative in teams. In addition, students will learn the critical steps needed to plan and implement a thorough research project.

AET Specialty Courses

AET Information Technology & Computer Science 829300
Grade(s): 9 Credit: 1
Prerequisite: None

This course is the first of the computer science courses specifically designed for AET IT pathway students who wish to engage in an intensive study of computer science and information technologies. It is designed for students with no programming experience. The course will cover object-oriented programming, graphics and animation, GUI interfaces, arrays and files, sorting, recursion and ethics. The programming language is JAVA. All AET IT students will be required to design, develop and conduct multiple programming and research projects while attending the AET.

AET Engineering Studies I 855101
Grade(s): 9 Credit: 1
Prerequisite: None

This course is the first in a series of engineering studies courses specifically designed for AET Engineering students. The course is designed for students who wish to engage in an intensive study of engineering, including the engineering design process. The course is inquiry-based with much of the content learned through investigation and problem based exercises. Students will practice engineering

fundamentals, using mathematical and scientific concepts, and they will apply the engineering design process through participation in hands-on engineering projects. Students communicate project-related information through team-based presentations, proposals, and technical reports. All AET Engineering I students will be required to complete multiple engineering projects while attending the AET.

AET Engineering Studies II **855102**
Grade(s): 10 **Credit: 1**
Prerequisite: AET Engineering Studies I

This course is the second in a series of Engineering studies courses specifically designed for AET Engineering students. Engineering Studies prepares students by emphasizing integration of mathematics, science, and English concepts and skills into engineering problems in a curriculum demanding rigorous study habits and other college-level skills. Students are encouraged to become routinely inquisitive through brainstorming and prototyping. Students practice engineering skills and communication of technical information while applying the engineering design process to complete multiple engineering projects while attending the AET.

AET Entrepreneurship I **824201**
Grade(s): 9 **Credit: 1**
Prerequisite: None

This course is the first in a series of Entrepreneurship studies courses specifically designed for AET Entrepreneurship students. Students will learn to think entrepreneurially and to recognize opportunities in the marketplace that will enrich the lives of their community and the world. Students will learn core curriculum in business ownership, economics, finance, customer service and sales, and marketing in order to turn their STEM related entrepreneurial ideas into action. Designed for students who are interested in STEM fields and wish to engage in an intensive study of developing, marketing and managing STEM related businesses. All AET Entrepreneurship students will be required to develop multiple, STEM focused business and marketing plans.

AET Entrepreneurship II **824202**
Grade(s): 10 **Credit: 1**
Prerequisite: AET Entrepreneurship I

This course is the second in a series of Entrepreneurship studies courses specifically designed for AET Entrepreneurship students. Students will concentrate on advanced strategies for entrepreneurship with an emphasis on opportunities in the STEM industries. It will build on concepts introduced in AET Entrepreneurship I and focus on the development of a business plan and small business management. Designed for students who are interested in STEM fields and wish to engage in an intensive study of developing, marketing and managing STEM related businesses. All AET Entrepreneurship students will be required to develop multiple, STEM focused business and marketing plans.

AOS Mathematics Courses

AOS Mathematical Analysis and Computational Modeling I **563001**
Grade(s): 9 **Credit: 1**
Prerequisite: None

SOL Test This course provides the foundation for investigation of mathematical systems and their interrelationships from a transformational approach. Elementary and transcendental functions, parametric equations, polar coordinates, matrices, and linear algebra are studied in context-rich, data-driven application problems. A scientific, inquiry-based methodology is utilized to clearly connect mathematical concepts to topics in the integrated physical sciences course. An introduction to statistics through normal distributions and elementary probability theory with an emphasis on applications to scientific research provides a foundation for further study in the second course. Mathematical and computational modeling using various technologies is a major feature of the course. The course places heavy emphasis on mathematical communication, reasoning, authentic problem solving, critical thinking, and multiple representations of mathematical concepts.

AOS Mathematical Analysis and Computational Modeling II with Statistics **563002**
Grade(s): 10 **Credit: 1**
Prerequisite: AOS Mathematical Analysis and Computational Modeling I

This course provides a continuation and expansion of the study of elementary, transcendental, and logistic functions, as well as parametric, polar, matrix, and linear algebra systems. Infinite sequences and series, limits, continuity, and rates of change as an introduction to the derivative are major topics introduced in this second course. Emphasis on mathematical modeling to study rates of change introduces the concept of a derivative. Differential calculus concepts are thoroughly explored and integration is introduced to prepare students for the AP Calculus BC course the following year. The inquiry-based methodology and transformation approach utilized in the previous course are continued as unifying themes in this second course. Inferential statistics topics, including both parametric and non-parametric tests, are major components of the course and are introduced in project-based activities that complement the integrated science course and provide a foundation for independent science research in the 11th and 12th grade.

Mathematical and computational modeling using various technologies is an integral part of the course. Heavy emphasis is placed on mathematical communication, reasoning, authentic problem solving, critical thinking, and multiple representations of mathematical concepts.

AOS AP Calculus AB**Grade(s): 11-12****561100****Credit: 1**

This course covers all the topics in the College Board's description of an AB level AP Calculus course. In addition, the students experience use of one or more differential equations to create models for a variety of dynamic processes of the types studied in the physical and biological sciences. After the AP exam in May, the students are introduced to classical methods of statistical inference.

Students have the opportunity to take the AP AB Calculus exam in May with the possibility of earning college credit.

AOS AP Calculus BC**Grade(s): 11-12****571100****Credit: 1**

This course covers all of the topics in the College Board's description of a BC level AP Calculus course. In addition, the students experience use of one or more differential equations to create models for a variety of dynamic processes of the types studied in the physical and biological sciences. After the AP exam in May, the students are introduced to classical methods of statistical inference.

Students have the opportunity to take the AP BC Calculus exam in May with the possibility of earning college credit.

AOS Multivariable Calculus**AOS Multivariable Calculus DE 583001/583007****Grade(s): 12****583100****Credit: 1****Prerequisite: None**

This is a course in vector calculus. There is a special emphasis on using vector fields to model motion of particles and fluids in two and three dimensions. The software tool *Mathematica* is used throughout the course to create interactive graphics to enhance the meaning of calculations. In this context, students discover methods for computing or approximating double and triple integrals. The work includes the use of the theorems of Gauss, Green, and Stokes to measure flow and turbulence.

Upon successful completion of this full-year course, students will receive 4 college credits from Northern Virginia Community College.

AOS Multivariable Calculus with Topics**From Differential Equations****Grade(s): 12****584100****Credit: 1**

This course includes all the topics in the AOS Multivariable Mathematics. In addition, the students write differential equations for a variety of oscillating motions including those with damping and exterior forcing. As they explore techniques for getting exact or appropriate solutions of these equations, they will work with several techniques included in a first college level course in differential equations.

AOS Science Courses**AOS Integrated Science I****Grade(s): 9****664900****Credit: 1****Prerequisite: None**

SOL Test This course is the first in a series of integrated science courses (two-year sequence of courses) designed for AOS students. Students study the physical sciences, physics, chemistry, and earth science as an integrated progression of science topics and learn content typically taught in these courses. The course is inquiry-based with much of the content learned through laboratory exercises, many of which are student-designed. Students take the Earth Science and Chemistry SOL tests during the AOS Integrated Science course progression. AOS Integrated Science I, II, and III prepare students for the advanced study of physical sciences in the junior and senior years. This course is required for all AOS freshman.

AOS Integrated Science II**Grade(s): 9****645900****Credit: 1****Co-requisite: AOS Integrated Science I**

SOL Test This course is the second in a series of integrated science courses (two-year sequence of courses) designed for AOS students. Students study the physical sciences, physics, chemistry, and earth science as an integrated progression of science topics and learn content typically taught in these courses. The course is inquiry-based with much of the content learned through laboratory exercises, many of which are student-designed. Students take the Earth Science and Chemistry SOL tests during the AOS Integrated Science course progression. AOS Integrated Science I, II, and III prepare students for the advanced study of physical sciences in the junior and senior years. This course is required for all AOS freshman.

AOS Integrated Science III**Grade(s): 10****654900****Credit: 1****Prerequisite: AOS Integrated Science I and II**

SOL Test This course is the third in a series of integrated science courses (two-year sequence of courses) designed for AOS students. Students study the physical sciences, physics, chemistry, and earth science as an integrated progression of science topics and learn content typically taught in these courses. The course is inquiry-based with much of the content learned through laboratory exercises, many of which are student-designed. Students take the Earth Science and Chemistry SOL tests during the AOS Integrated Science course progression. AOS Integrated Science I, II, and III prepare students for the advanced study of physical sciences in the junior and senior years. This course is required for all AOS sophomores.

AOS Biology 652900
Grade(s): 11 Credit: 1
Prerequisite: None

The AOS Biology course is the next logical step for students who have spent two years in an integrated, inquiry-based science program. AOS Biology is a rigorous course preparing students for college level work. The approach of this course is a project/problem-based program where a scientific dilemma is posed to students; the students identify what they need to know in order to answer the question; the teacher leads them through the content they need in order to answer the question; and lab activities are relevant to the topic covered. Biology is a required class for AOS students in Grade 11.

AOS Sophomore Science Research 651900
Grade(s): 10 Credit: 1
Prerequisite: AOS Integrated Science I and II

In this course, students conduct a series of interdisciplinary science research activities designed to involve students in the application and use of inquiry-based methodology and to learn the use of techniques, equipment, and protocols typically used in scientific research laboratories. This course also enhances the ability of students to read and write scientific papers at the publication level. During the second semester, students begin work on a science research project of their own design that can be continued throughout their years as an AOS student. Sophomore Science Research is offered in conjunction with AOS Integrated Science III. This course is required for all AOS sophomores.

AOS Junior Science Research 661900
Grade(s): 11 Credit: 1
Prerequisite: AOS Sophomore Science Research

Students continue to conduct interdisciplinary science research activities using inquiry-based methodology and increase their skill level with laboratory techniques and protocols in this course. This course also enhances the ability of students to read and write scientific papers at the publication level. Based on their interests, students begin to develop a research plan for an independent science research project that they complete in the Senior Science Research course. With a faculty mentor, they conduct a literature search, develop laboratory protocols, develop a materials list, create a budget, and work as a bench scientist. Regular presentation of results is an expectation for all research students. While it is intended that most of the bench-work can be conducted at AOS, some students interact with local scientists who act as mentors during both the school year and summer.

AOS Senior Science Research 671900
Grade(s): 12 Credit: 1
Prerequisite: AOS Junior Science Research

In this course students continue to conduct interdisciplinary science research activities using inquiry-based methodology and increase their skill level with laboratory techniques and protocols. This course also enhances the ability of students to read and write scientific papers at the publication level. Students in senior research continue their work on the plan created during the junior research course. They conduct their bench-work with the guidance of a faculty mentor. Regular presentation of results is an expectation for all research students. While it is intended that most of the bench-work can be carried out at AOS, some students interact with local scientists who act as mentors during both the school year and summer.

AOS AP Biology 664100
Grade(s): 12 Credit: 1
Prerequisite: None

This advanced course is a college-level, fast-paced course that follows the course outline of the College Board's AP Biology program. The course emphasizes cellular biology, biochemical processes of cellular respiration and photosynthesis, vertebrate anatomy and physiology, advanced genetics, evolution, plant anatomy and physiology, and ecology.

Students have the opportunity to take the AP Biology exam in May with the possibility of earning college credit.

AOS AP Chemistry 669100
Grade(s): 12 Credit: 1
Prerequisite: None

This advanced course is a college-level, fast-paced course in Chemistry that follows the course outline of the College Board's AP Chemistry program. The course includes many extended lab procedures. In addition, such fields as organic chemistry, biochemistry, nuclear chemistry, coordination complexes, and semi-micro qualitative analysis are introduced.

Students have the opportunity to take the AP Chemistry exam in May with the possibility of earning college credit.

AOS AP Environmental Science 674100
Grade(s): 12 Credit: 1
Prerequisite: None

This advanced course is a college-level, fast-paced course in Environmental Science that follows the course outline of the College Board's AP Environmental Science program. The course includes field work and many extended lab procedures. The course emphasizes population biology; ecosystems; geologic and earth science concepts; atmospheric science; land and water use topics including energy and energy use, consumption, and conservation, and pollution; and global change. Students have the opportunity

to take the AP Environmental Science exam in May with the possibility of earning college credit.

AOS AP Physics C: Mechanics **662100**
Grade(s): 12 **Credit: 1**
Prerequisite: None

This course is a college-level, fast-paced course in that follows the course outline of the College Board's AP Physics program. Emphasis is placed on mechanics, and the student has the option to study additional topics. Pre-calculus and calculus skills are used to develop concepts and solve problems.

Students have the opportunity to take the AP Physics exam in May with the possibility of earning college

MATA Specialty Courses

credit.

MATA Administration of Justice I DE **887300/887306**
Grade(s): 11-12 **Credit: 3**
Prerequisite: None

This semester-long course is the first course in the Administration of Justice sequence. This course prepares students for entry-level employment in the law enforcement and criminal justice field as well as entrance into institutions of higher learning in the related fields of criminal justice, political science, and law. Topics include, but are not limited to criminal justice professions, ethics, communication skills, report writing, interpreting criminal and civil laws, use of force, emergency response, traffic control, vehicle stops, crime prevention, patrol functions, community policing, criminal investigation, search and seizure, arrest and court procedures, corrections, the juvenile justice system, crime scene investigation, and crime prevention.

Upon successful completion of the course, students can earn 9 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Administration of Justice II DE **887400/887406**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Administration of Justice I DE

This semester-long course is the second course in the Administration of Justice sequence. This course prepares students for entry-level employment in the law enforcement and criminal justice system as well as entrance into institutions of higher learning in the related fields of criminal justice, political science, and law. The course explores career opportunities in the criminal justice community, understanding the constitution, substantive law, procedural law, and due process of law, and its impact on interviews and interrogations, developing probable cause, preparing search and arrest warrants, organized crime and criminal activities associated with those type of investigations, federal taskforces; complex criminal investigation, investigative techniques, the use of informants, wire intercepts, international terrorism and

counterterrorism strategies, as well as advanced crime scene investigation.

Upon successful completion of the course, students can earn 9 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Auto Collision Repair Technology I **867100**
Grade(s): 11-12 **Credit: 3**
Prerequisite: None

This semester-long course is the first course in the MATA Auto Collision Repair Technology sequence. This course provides basic knowledge and skills in the use of shop materials, equipment, tools, procedures, and manuals in the auto body and auto refinishing fields. Basic welding, aligning, roughing out, and replacing and refinishing (painting) of auto body sheet metal, plastics, urethane, and composites are among the skills taught in this course. Fundamentals of auto body repair estimating are also taught. Students gain experience through theory and hands-on shop projects.

Lab Fee: \$40.00

MATA Auto Collision Repair Technology II **867200**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Auto Collision Repair Technology I

This semester-long course is the second course in the MATA Auto Collision Repair Technology sequence. Students have the opportunity to develop their knowledge and skills through applied theory and hands-on shop projects using knowledge learned in Collision Repair Technology I. Instructional topics include engine cooling systems, automotive circuits and wires, underbody measurement, and structural alignment. Students explore career options such as auto collision repair technician, automotive refinishing technician, automotive parts specialist, detail technician, estimator, and insurance adjuster. Upon successful completion of this course, students are prepared to perform many aspects of collision repair and qualify for sponsored apprenticeship programs.

Lab Fee: \$40.00

MATA Auto Servicing Technology I **862100**
Grade(s): 11-12 **Credit: 3**
Prerequisite: None

This semester-long course is the first course in the MATA Auto Servicing Technology sequence. This program provides the opportunity for students to develop the skills needed to follow environmental and safety practices and inspect, diagnose, adjust, and repair the systems of the modern technological automobile. An industry standard curriculum, master-certified, credentialed by the Automotive Service Excellence (ASE) and National Automotive Technician Educational Foundation (NATEF), provides the student the training format to proceed from the basic to advanced level technician in in brakes, steering and suspension, engine repair, and heating ventilation & air conditioning (HVAC). Students may obtain ASE certification. Internship programs are available to students meeting certain criteria. Students can work with selected mentors at local dealerships or other auto servicing businesses. This

course is part of the Loudoun Governor's Career and Technical STEM Academy.

Lab Fee: \$30.00

MATA Auto Servicing Technology II **862200**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Auto Servicing Technology I

This semester-long course is the second course in the MATA Auto Servicing Technology sequence, and covers environmental and safety practices and inspections, diagnosing, adjusting, and repairing the systems of the modern technological automobile. An industry standard curriculum, master-certified by ASE (Automotive Service Excellence) and NATEF (National Automotive Technician Educational Foundation), provides the student the training format to proceed from the basic- to advanced-level technician in Electricity, Manual Drive train and Axle, Engine Performance, and Automatic Transmission. Students may obtain ASE certification in these areas. Internship programs are available to students meeting certain criteria. Students can work with selected mentors at local dealerships or other auto servicing businesses. This course is part of the Loudoun Governor's Career and Technical STEM Academy.

Lab Fee: \$30.00

MATA Biotechnology **885200**
Grade(s): 11-12 **Credit: 3**
Prerequisite: None

This one-year course introduces students to the world of biotechnology which includes the study of living organisms or their products to modify human health and the human environment. Students explore many topics related to research, bioethics, forensics, health and medical fields, agriculture, environmental management, and many more. Through lab experiences, students use a variety of laboratory equipment and become involved in research through scientific inquiry and on-line mentorships. This course is part of the Loudoun Governor's Career and Technical STEM Academy program.

MATA Building Construction I **865100**
Grade(s): 11-12 **Credit: 3**
Prerequisite: None

This semester-long course is the first course in the MATA Building Construction sequence. Students acquire basic understanding of residential construction and the carpentry trade. The program also provides instruction on plan reading and comprehension. Units of instruction include the completion of an Occupational Safety and Health Administration (OSHA) certification program and the study of structural components with emphasis on how they relate to each other, code, and to the finished product. This includes foundation work, floor and wall framing, interior and exterior finishes, and the construction and installation of cabinetry.

MATA Building Construction II **865200**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Building Construction I

This semester-long course is the second course in the MATA Building Construction sequence. Students expand their knowledge base with advanced skills, frequently

working independently. Students earn their OSHA 10 Card Certification and complete more in-depth work. Upon successful completion of this program, students may be prepared to perform many aspects of building construction and are eligible for sponsored apprenticeship programs. The graduating students receive professional accreditation from the National Center for Construction Education and Research (NCCER) for their course work.

MATA CISCO I DE **895100/895106**
Grade(s): 11-12 **Credit: 0.75**
Prerequisite: None

This first-quarter course covers networking concepts, design, implementation, management and operation at an introductory and advanced level. This course lays the foundation of computer-based training (CBT) modules developed by Cisco Systems and uses the CISCO Certified Network Associate (CCNA) curriculum to prepare students to take the CCNA certification exam. Students learn how to design, install, configure, operate, and troubleshoot simple and complex networks. Topics covered include network architecture (physical and logical), industry standards, protocols, network devices (such as routers, switches, and hubs), media selection, data transmission, and cabling. Students may obtain Introduction to Copper Cabling, Leviton Structured Wiring, and Introduction to Fiber Optic certification through C-Tech. Students study basic standards and proper manufacturing techniques used in the field.

Upon successful completion of all 4 parts of this course, students will receive 16 college credits from Northern Virginia Community College. 4 credits are awarded for each level (by quarter) completed. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA CISCO II DE **895200/895206**
Grade(s): 11-12 **Credit: 0.75**
Prerequisite: MATA CISCO I DE

This second-quarter builds upon the topics presented in CISCO I.

MATA CISCO III DE **895300/895306**
Grade(s): 11-12 **Credit: 0.75**
Prerequisite: MATA CISCO II DE

This third-quarter course builds upon the topics presented in CISCO I & II.

MATA CISCO IV DE **895400/895406**
Grade(s): 11-12 **Credit: 0.75**
Prerequisite: MATA CISCO III DE

This final course in the CISCO sequence builds upon the topics covered in CISCO I, II, and III. This course prepares students to take the Cisco Certified Network Associate (CCNA) certification exam.

MATA Computer & Digital Animation I DE
Grade(s): 11-12
Prerequisite: None

893003/893007
Credit: 3

This course is the first course in the MATA Computer & Digital Animation sequence. Computer & Digital Animation I is an introductory course in digital content creation and animation. Students produce computer-generated models, characters, and animations using professional software. Students study the production pipeline from story idea to final render. The software used is from the Autodesk Entertainment Creation Suite. Software covered includes 3ds Max, and Mudbox. This course is part of the Loudoun Governor's Career and Technical STEM Academy.

Upon successful completion of the course, students can earn 11 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Computer & Digital Animation II
Grade(s): 12
Prerequisite: MATA Computer & Digital Animation I

839006
Credit: 3

This course is the second course in the MATA Computer & Digital Animation sequence. Computer & Digital Animation II is a continuation of topics covered in MATA Computer & Digital Animation I. Students produce CG models, characters, and animations using software from the Autodesk Entertainment Creation Suite. Covered software includes 3dsMax, Maya, Mudbox, Motionbuilder and Sketchbook Designer. Students create content suitable for TV, film, computer simulations, computer games, and architectural visualization.

MATA Computer Integrated Engineering & Design (CIED) I DE
Grade(s): 11
Prerequisite: None

898500/898506
Credit: 3

CIED provides students with a foundation of skills needed for manufacturing and engineering in today's "high tech" workplace. The course focus is on hands-on, task-based activities where students learn and practice industrial and engineering skills. Students follow a self-paced curriculum covering robotics, CADD/CAM, electrical systems, fluid systems, materials engineering, mechanical systems, quality assurance, computer control, solar photovoltaic installation, and wind turbine installation. Students are introduced to Solidworks, Mastercam and mill/lathe CNC programming. CIED gives students a jump-start to pursue careers in engineering technology. This course is part of the Loudoun Governor's Career and Technical STEM Academy.

Upon successful completion of the course, students can earn 11 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Cosmetology I
Grade(s): 11
Prerequisite: None

873700
Credit: 3

The first semester of Cosmetology introduces students to the basics of shampooing and hairstyling, scalp treatments, hair cutting, finger waving, pin curling, roller techniques, chemical relaxing, permanent waving, hair coloring, facials, make-up, wig care, and manicuring. Related subjects include public health, personal hygiene, bacteriology, and salon management. Students are required to purchase a cosmetology kit which includes items needed for the two-year program.

Lab Fee: \$294.00

MATA Cosmetology II
Grade(s): 11
Prerequisite: MATA Cosmetology I

874700
Credit: 3

In this second semester course, students are taught the skills necessary to develop job entry requirements as a cosmetologist by performing the services expected in a professional salon environment. Advanced skills include hair cutting, chemical texture services, hair coloring, lightening, special effects hair color services and color removal application hairstyling, thermal waving and pressing, artificial nail applications, and waxing services. Students also attain training in salesmanship, salon management and ownership, product knowledge, and public relations. Human anatomy and physiology, chemistry and electricity, diseases and disorders of the scalp, skin, and nails are also covered.

MATA Cosmetology III
Grade(s): 12
Prerequisite: MATA Cosmetology II

874800
Credit: 3

This course is the third course in the MATA Cosmetology sequence. In this advanced course, students build on their theoretical foundation of general sciences and practices in cosmetology to increase proficiency in hair cutting and styling on live models, with attention to professionalism, client consultation, safety, and infection control. Students are trained in safe chemical processes related to chemical texture services and advanced hair coloring techniques. They also develop artistic skills with wigs and hair additions. In addition, students learn to care for skin, hands, and feet, developing experience in providing facials, manicures, pedicures, and nail enhancements. An advanced business management unit focuses on managing the salon. Competency completion prepares the student for the Virginia State Licensing Exam. (This semester course is directly followed by MATA Nail Design Technology)

MATA Culinary Arts I
Grade(s): 11-12
Prerequisite: None

875100
Credit: 3

This course is the first semester in the MATA Culinary Arts sequence. This program is designed to prepare students for employment in the culinary industry or to continue with post-secondary training in such areas as culinary arts, baking and pastry, or restaurant management. Students complete units in the history of hospitality, safety, sanitation, equipment use, recipe production, management, serving the guest, and professionalism. Commercial

methods of food storage, preparation, and handling are practiced. Skills are developed in the preparation of appetizers, soups, salads, meats, fruits, vegetables, breads, garnishes, and desserts. Students participate in both on-site and off-site catering events and meal service, and have many opportunities to use their creativity as they design and prepare food for service and display. Participation in culinary and hospitality competitions on the local, state, and national level is encouraged.

MATA Culinary Arts II **875200**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Culinary Arts I

This course is the second semester in the MATA Culinary Arts sequence. Students learn production and service skills used in the culinary industry. Nutrition, management skills, marketing, sustainability, and exploration of ethnic cuisines are emphasized. Students develop menus, food orders, and production schedules to be used while preparing and serving luncheons and special catered events. Technology is utilized to conduct nutritional analysis, menu planning, costing, and inventory control. Visits to local food service establishments are arranged, giving students the opportunity to observe first-hand the talents, responsibilities, and expectations of chefs, cooks, bakers, hospitality employees, caterers, and entrepreneurs. Those who successfully complete Culinary Arts I and II, a 400-hour mentorship program, and pass both the Level 1 and Level 2 ProStart exams will receive a ProStart certificate from the National Restaurant Association.

MATA Cybersecurity DE **894100/894106**
Grade(s): 11 **Credit: 3**
Prerequisite: None

In this first-year course of the MATA Cybersecurity program, students enter the world of computer technology and gain practical experience in assembling a computer system. Students will install, configure, and secure various operating systems. Students will troubleshoot computers and peripherals and use system tools and diagnostic software. They develop skills in computer networking and resource sharing. In addition, students explore the relationships between internal and external computer components. Upon successful completion of the course students may qualify to take the CompTIA A+ certification exam as well as earn college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Emergency Medical Technician (EMT) I DE **859400/859406**
Grade(s): 11-12 **Credit: 3**
Prerequisite: Must be affiliated with a volunteer fire or rescue department in Loudoun County

The EMT program is designed to provide training to individuals in order to function independently in a medical emergency and serve as a vital link in the chain of the health care team. This semester-long course includes all skills necessary to provide emergency medical care as an attendant-in-charge with a basic life support ambulance service or other specialized rescue service.

Upon successful completion of the course, students can earn 7 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Emergency Medical Technician (EMT) II DE **859500/859506**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Emergency Medical Technician I

This second semester course builds upon the topics covered in MATA Emergency Medical Technician I. The tasks for this course represent the National Emergency Medical Services Educational Standards. Students build on their knowledge and skills for providing basic life support by focusing on the areas of emergency medical services (EMS) operations, medical emergencies, and management of special patient populations. Supervised field experience outside of school hours is required. Successful completion of this second course in the sequence will earn the student CTE completer status. Successful completion of all course requirements and instructor endorsement may lead to eligibility to take the Virginia State Psychomotor Exam and the National Registry EMT cognitive exam.

Upon successful completion of the course, students can earn 5 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Environmental Plant Sciences DE **885100/895106**
Grade(s): 11-12 **Credit: 3**
Prerequisite: None

This one-year course focuses on plants as related to environmental responsibility. Topics include forestry, natural resource management and conservation, plant physiology, sustainable agriculture practices, landscaping and design, soil science, propagation, floral design. This course encourages students to interact with professors as well as government and industry professionals. This is a Loudoun Governor's Career and Technical STEM Academy course. Additionally, industry certification may be acquired in the following: Virginia Nursery and Landscape Association as a Certified Horticulturist; Virginia Flower Growers Association as a Certified Greenhouse Operator; Virginia Department of Agriculture and Consumer Service as a Pesticide Technician.

Upon successful completion of the course, students can earn 12 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Firefighter I DE **859600/859606**
Grade(s): 11-12 **Credit: 3**
Prerequisite: Must be affiliated with a volunteer fire or rescue department in Loudoun County

During this first semester, students are taught the Virginia Department of Fire Programs curriculum. Emphasis is placed on moving the new firefighter ahead to be more prepared and assume more of a leadership role within a department. Instruction includes the proper use of personal

protective equipment, maneuvering through dark and small areas, use of ladders, use of hoses and nozzles, techniques and equipment for the extinguishment of fires, fire behavior, basic hazardous materials operation/mitigation, and ropes/knots. A combination of classroom study, scenarios, and modular practical experiences prepares students to carry out most fire ground functions under the direct supervision of an officer or experienced firefighter. Students learn to make basic evaluations of safety problems and assume leadership roles in conducting interior attack and search operations.

Upon successful completion of the course, students can earn 3 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Firefighter II DE **859700/859706**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Firefighter I

This course builds upon the professional knowledge gained and skills taught in Firefighting I. Students respond to simulated hazardous-materials incidents and conduct rescue operations, including vehicle extrication. Students react to multi-faceted situations (e.g., caused by simulated terrorism, accidents, and natural disasters) by managing resources such as medivac helicopters, emergency medical personnel, technical rescue teams, and community-based organizations. Students will become familiar with the procedures, equipment, and technologies used by current fire departments. This course challenges students academically, mentally, and physically and meets the standards of National Fire Protection Association (NFPA) leading to Firefighting II certification.

Upon successful completion of the course, students can earn 4 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Graphic Communications I **879100**
Grade(s): 11-12 **Credit: 3**
Prerequisite: None

This semester-long course is the first course in the MATA Graphic Communications sequence. This program is an introduction and investigation of variable topics in graphic design, computer graphics and visual communication principles, theory and practice. Various fundamental design philosophies and applications are examined as students work individually and collaborate in teams to design digital projects. Emphasis on concept driven projects include aspects of designs related to digital techniques of layout, typography and digital image/photo manipulation, digital illustration, layout, animation, and web design. Construction and composition of finished work is created using a variety of interactive productivity software programs, books and various learning resources. The course includes safety standards related to equipment used, research, writing, text reading, discussions, oral presentations, lectures, specific project assignments, and design concept development in a time-based context. In addition, students learn workplace readiness skills of

corporate, client-based and public service-based interactive design strategies.

Lab Fee: \$75.00

MATA Graphic Communications II **879200**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Graphic Communications I

This semester-long course is the second course in the MATA Graphic Communications sequence. This course covers advanced concepts and techniques of design utilizing interactive software to develop and compose a comprehensive professional portfolio. Curriculum includes contracts, copyright issues, interviewing skills, resume and cover-letter writing, design briefs and proposals, freelance business issues, as well as portfolio preparation and presentation. Portfolio presentation includes concepts learned in MATA Graphic Communications I. Under the guidance and supervision of faculty, students learn first-hand how to establish and run a creative design firm by working directly with clients, establishing and forecasting budgets and working within those budgets. In addition, students work with printers and press runs to meet real working deadlines. Students compete in annual design/print competitive association activities and are given the opportunity to obtain PrintEd certifications.

Lab Fee: \$75.00

MATA Heating, Ventilation, & Air Conditioning (HVAC) I **881100**
Grade(s): 11-12 **Credit: 3**
Prerequisite: None

This semester-long course is the first course in the MATA Heating, Ventilation, & Air Conditioning (HVAC) sequence. This course provides basic knowledge and skills in residential and commercial air conditioning, refrigeration, and heating. Instruction includes basic electricity, safety, the physics of the refrigeration process, soldering and silver brazing, electrical components and controls, wiring diagrams, basic plumbing, sheet metal fabrication, and duct installation.

Lab Fee: \$35.00

MATA Heating, Ventilation, & Air Conditioning (HVAC) II **881200**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Heating, Ventilation, & Air Conditioning (HVAC) I

This semester-long course is the second course in the MATA Heating, Ventilation, & Air Conditioning (HVAC) sequence. Students are provided advanced skills in residential and commercial air conditioning, refrigeration, and heating. The students learn to install, maintain, and repair heating and cooling equipment. Instruction includes air distribution and ventilation systems, refrigeration equipment, oil, gas, electric and heat pump systems, residential plumbing, and electrical layout and installation. Upon successful completion of this course, students are prepared to perform most aspects of HVAC and qualify for sponsored apprenticeship programs. Students may be eligible to take the Environmental Protection Agency (EPA) Certification Exam, the Universal R-410 A Certification Exam, any or all of the 12 HVAC Excellence Exams, and the National Construction Career Test (NCCT).

Lab Fee: \$35.00

**MATA Introduction to Health
and Medical Sciences DE**

861006

Grade(s): 10

Credit: 3

Required: Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)

This course introduces students to a vast array of careers within the health and medical professions. Students learn basic medical skills necessary to function safely and efficiently within the medical community. Career exploration allows students to make informed choices within related professions while preparing for future educational requirements. Students are exposed to medical terminology; pharmacology; anatomy and physiology; and therapeutic and diagnostic interventions. Instruction also emphasizes professionalism, legal/ethical issues, and communication skills. Students rotate through various medical settings for observational opportunities, connecting classroom knowledge with real-life experiences.

Upon successful completion of the course, students can earn 4 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

Lab Fee: \$100.00

MATA Masonry I

898100

Grade(s): 11-12

Credit: 3

Prerequisite: None

This semester-long course is the first course in the MATA Masonry sequence. This course familiarizes students with various materials, tools, equipment, and practices of the masonry trade. The program helps students develop the skills and technical knowledge to lay concrete, block, brick, and ceramic tile. Students also study blueprint reading and do labor and material estimates for residential and commercial projects. Students obtain an OSHA-10 certificate.

MATA Masonry II

898200

Grade(s): 11-12

Credit: 3

Prerequisite: MATA Masonry I

This course is the second course in the MATA Masonry sequence. Students advance their skills with concrete, block, brick, and ceramic tile. They complete various projects such as chimneys, fireplaces, sidewalks, and arches. They also learn repair and renovation work. Stone masonry is included and prepares students to design and repair stone walls, fireplaces, sidewalks, and entryways.

MATA Medical Laboratory Technology I DE

861200/861206

Grade(s): 11

Credit: 3

Required: Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)

This curriculum is designed to prepare students to gain foundational knowledge and skills appropriate for a variety of medical-related career paths in the field of medical laboratory technology. They are introduced to diagnostic laboratory procedures that support medical practice and research, and investigate safety, quality assurance, and ethical concerns associated with the field of

laboratory medicine. Medical laboratory disciplines studied include: Clinical Chemistry, Urinalysis, Clinical Hematology, Phlebotomy, and clinical laboratory biotechnology techniques. Students will have the opportunity to shadow in a professional setting as well as participate in organized field experiences.

Upon successful completion of the course, students can earn 2 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Medical Laboratory Technology II

861701

Grade(s): 12

Credit: 3

Prerequisite: MATA Medical Laboratory Technology I

Students build on the foundational knowledge and skills obtained in Medical Laboratory Technology I. The student uses the basic principles necessary to perform competently in the areas of Hematology, Clinical Chemistry, Clinical Microbiology, Immunohematology, and Immunology/Serology. Competencies includes performing the technique correctly, understanding the theory of the procedures, and the proper interpretation of results. Weekly laboratories stress actual student performance of the routine tests normally seen in the clinical setting.

MATA Nail Design Technology

891000

Grade(s): 12

Credit: 3

Prerequisite: MATA Cosmetology III

This course is the fourth course in the MATA Cosmetology sequence. Students learn to manicure, pedicure, install and maintain artificial nails, and apply concepts associated with bacteriology, sanitation, nail disorders, anatomy and physiology, and safety.

MATA Pharmacy Technology I

861301

Grade(s): 11

Credit: 3

Required: Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)

This certificate program is designed to provide students with the basic skills and knowledge to begin work as a pharmacy technician. The coursework will fulfill the requirements of the Board of Pharmacy and prepare students to take either the state examination or the national examination administered by the Pharmacy Technician Certification Board. Trained, experienced pharmacy technicians who can demonstrate the right skills and knowledge should be able to pursue many exciting and respected career options or postsecondary study in the pharmacy field. Students have the opportunity to shadow in a professional setting as well as participate in organized field experiences.

MATA Pharmacy Technology II DE

862300/862306

Grade(s): 12

Credit: 3

Prerequisite: MATA Pharmacy Technology I

This second year of the certificate program is designed to provide students with the basic skills and knowledge to begin work as a pharmacy technician. The coursework fulfills the requirements of the Board of Pharmacy and prepares students to take either the state

examination or the national examination administered by the Pharmacy Technician Certification Board. Emphasis is placed on clinical field experiences and/or coordinated work-experiences.

Upon successful completion of the course, students can earn 3 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Practical Nursing (PN) I **888100**
Grade(s): 11-12 **Credit: 3**
Required: Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)

Practical Nursing I is the first semester of a two-year Practical nursing program that is accredited by the Virginia Board of Nursing. Class units include geriatric nursing, nursing skills, nutrition, growth and development, nursing fundamentals, administration of medication, and anatomy and physiology. There is also a required 40-hour clinical experience at a long-term care facility. All students must be able to provide their own transportation to clinical experiences. PN I students are eligible to take the Certified Nurse Aide exam after successful completion of PN I.

MATA Practical Nursing (PN) II **888200**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Practical Nursing I

In the second semester of Practical Nursing, instruction will focus on basic nursing skills, medical asepsis, human development across the life cycle, and an introduction to pharmacology. Students will also apply basic nursing skills in interactive settings.

Lab Fee: \$230.00

MATA Practical Nursing (PN) III **888300**
Grade(s): 12 **Credit: 3**
Prerequisite: MATA Practical Nursing II

Practical Nursing III is the second year of a two-year Licensed Practical Nurse (LPN) program that is approved by the Virginia Board of Nursing. The LP works in all healthcare settings under the direction of a medical doctor or registered nurse. Class units taught are medical and surgical nursing, pediatric nursing, advanced nursing skills, and professional issues. There is also a requirement of clinical experience at hospitals and doctors' offices. During clinical time, the students give direct patient care under the supervision of the clinical instructors. After successful completion of the program, students are eligible to take the NCLEX PN Licensing Exam and upon passing are able to work as a Licensed Practical Nurse (LPN).

Lab fee: \$230.00

MATA Radiology Technology I DE **861400/861406**
Grade(s): 11 **Credit: 3**
Required: Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)

The course informs students early in their study of what they can expect from a career in radiologic technology,

requirements for certification, options for advancement, and what is required of them as allied healthcare workers. The student develops an understanding of the radiographer as a central member of the health care team and a valuable assistant to the radiologist. This curriculum is designed to prepare the student to understand the anatomy and physiology assessed in diagnostic images of the human body. The student develops an understanding of the safe use of radiation within the medical field. Additional topics of study include the history of the radiological profession, medical ethics, concepts of imaging, radiobiology, radiation protection, and the future of radiologic technology careers. Students may have the opportunity to shadow in professional settings.

Upon successful completion of the course, students can earn 2 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

MATA Radiology Technology II **861501**
Grade(s): 12 **Credit: 3**
Prerequisite: MATA Radiology Technology I

This course builds upon the topics covered in MATA Radiology Technology I. Students assist with radiology labs twice. As part of the course content, students are expected to engage in volunteer practices within a healthcare setting. Students develop an understanding of the biological and technical factors involved in medical imaging. Emphasis is placed on the physics of medical imaging equipment and the effect of medical radiation on biologic tissue. Students learn to apply radiation protection procedures for patients and medical imaging personnel. In addition, students expand their understanding of patient care within the radiology department to include assessment of vital signs, immobilization techniques for imaging, safe use of oxygen and pharmacologic during imaging procedures, use of sterile techniques, and evaluation of medical emergencies.

MATA Television Production I/ **893100**
Grade(s): 11-12 **Credit: 3**
Prerequisite: None

This first semester course covers camera operation, news reporting, non-linear editing, scriptwriting, audio production techniques, production planning, the business of video production, studio and control room operation, basic marketing, and production techniques. Students use a wide range of professional equipment and produce projects. Students receive hands-on training with computer effects, computer editing, professional camera equipment, and audio production.

MATA Television Production II/
Digital Moviemaking II **893200**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Television Production I/Digital Moviemaking I

The second semester offers students more advanced editing opportunities and more complex productions. Special productions are created are created

individually and in teams. Students use a wide range of professional equipment and produce projects. Students receive hands-on training with advanced computer effects, advanced computer editing, professional camera equipment, and complex audio production.

MATA Veterinary Science I **885401**
Grade(s): 11-12 **Credit: 3**
Prerequisite: None

This is the first semester of the MATA Veterinary Science program. This course orients the student to Veterinary Science, covering topics such as anatomy and physiology, terminology, safety and sanitation, parasitology, posology, animal nutrition, breeds, professional conduct, office management, and emerging technologies in animal agriculture. Students are involved in performing clinical exams, conducting laboratory and hospital procedures and handling animals coordinated with area veterinary clinics and hospitals.

MATA Veterinary Science II **885402**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Veterinary Science I

This is the second course of the Veterinary Science program. Students expand their knowledge of animal science and the care of animals, including animal structure and function, microbes and disease prevention, parasitology, and genetics and breeding. Students develop more advanced skills and techniques for assisting the veterinarian/technician in the following areas: performing first aid and surgery, applying aseptic techniques, performing technical functions, administering medication, handling death and dying, working with wildlife, and performing office functions. On-the-job clinical instruction coordinated by the instructor may be included in veterinary offices or animal clinics.

MATA Welding I DE **896100/896106**
Grade(s): 11-12 **Credit: 3**
Prerequisite: None

This first semester course consists of instruction in the set up and safe operation of Oxy-fuel Welding and Cutting, Plasma Arc cutting, Shielded Metal Arc and beginning GMAW welding processes. Students are trained in welding, cutting, and brazing. Class activities provide instruction in art and ornamental welding, preparation for the American Welding Society (AWS) Test, and construction and repair of metal projects.

Upon successful completion of the course, students can earn 7 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

Lab fee: \$30.00

MATA Welding II DE **896200/896206**
Grade(s): 11-12 **Credit: 3**
Prerequisite: MATA Welding I

Emphasis in this course is on Shielded Metal Arc Welding in the horizontal, in all position, and pipe. Students have the opportunity to practice for the AWS's Limited and Unlimited Welding Thickness Test. Welding certification options are available. Advanced work on the MIG and TIG processes is included.

Upon successful completion of the course, students can earn 8 college credits from Northern Virginia Community College. LCPS is not the awarding institution and cannot guarantee credit value, since credit value from NVCC may be subject to change.

Lab Fee: \$30.00

Middle School									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
100000	English 6		6						21
100200	English 6 Honors		6						21
101600	Reading Strategies 6		6						21
510000	Mathematics 6		6						21
512000	Accelerated Math 6/7		6						21
610000	Science 6		6						21
610200	Science 6 Honors		6						22
710000	U.S. Hist to 1865		6						22
710200	U.S. Hist to 1865 Honors		6						22
410000	Health and PE 6		6						22
809701	Keyboarding 6		6						22
200700	Art 6		6						22
003000	Resource 6		6						22
010000	Spectrum 6		6						22
235000	Chorus 6		6						22
205000	Music Lab 6		6						22
207000	Strings 6		6						23
230000	Band 6		6						23
102000	English 7		7						23
102200	English 7 Honors		7						23
115400	Communication Studies		7						23
115600	Accelerating Literacy Skills		7						23
103600	Reading Strategies 7		7						23
520000	Mathematics 7		7						23
530000	Mathematics 8		7	Recommendation					23
540000	Algebra I	1	7-8	Accelerated Math 6/7					24
620000	Life Science		7						24
620200	Life Science Honors		7						24
720000	U.S. Hist 1865 to Present		7						24
720200	U.S. Hist 1865 to Present Honors		7						24
420000	Health and PE 7		7						24
806700	Fam Consumer Sci 7		7						24
801700	Technology Ed 7		7						24
809709	Keyboarding 7/8		7-8						25,29
002000	Resource 7		7						25
015000	Spectrum 7		7						25
340000	French I	1	7-8						25,27
370000	German I	1	7-8						25,28
350000	Latin I	1	7-8						25,28
367000	Spanish for Fluent Speakers I	1	7-8	Placement Test					25,28
360000	Spanish I	1	7-8						25,28
201700	Art 7		7						25
231000	Band 7		7						26
236000	Chorus 7		7						26
208000	Guitar 7		7						26
207100	Strings 7		7						26
120000	English 8		8						26
120200	English 8 Honors		8						26
530000	Mathematics 8		8						26
550000	Geometry	1	8						26
630000	Physical Science		8						27
630200	Physical Science Honors		8						27
730000	Civics and Economics		8						27
730200	Civics and Economics Honors		8						27
430000	Health and PE 8		8						27
001000	Resource 8		8						27
010700	Spectrum 8		8						27

				Middle School					
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
342000	French II	1	8						27
372000	German II	1	8	German I					28
352000	Latin II	1	8	Latin I					28
367300	Spanish for Fluent Speakers II	1	8	Spanish for Fluent Speakers I or Placement Test					28
362000	Spanish II	1	8	Spanish I					28
202700	Art 8 Semester		8						28
202000	Art 8 Full Year		8						28
203000	Art 8 3D Design		8						28
237000	Chorus 8		8						28
232000	Band 8		8						29
207003	Strings 8		8						29
210000	Guitar 8 Level I		8						29
209000	Guitar 8 Level II		8						29
096000	AVID MS		8						29
105600	Reading Strategies 8		8						29
807000	Fam and Consumer Sci 8		8						29
802000	Technology Ed 8		8						29
803000	Technology of Robot Design	1	8						29
100011	Newcomer English 6		6						30
102011	Newcomer English 7		7						30
120011	Newcomer English 8		8						30
100012	ELL Intermediate English		6						30
102012	ELL Intermediate English		7						30
120012	ELL Intermediate English		8						30
610010	Newcomer Science 6		6						30
620010	Newcomer Science 7		7						30
630010	Newcomer Science 8		8						30
700010	Newcomer Social Science		6-8						30
710010	ELL U.S. Hist/Geography		6						30
720010	ELL U.S. Hist Concepts II		7						30
730010	ELL Civics/Econ Concepts		8						30
530010	ELL Fast Math		6-8						30

High School									
Career and Technical Education									
Business and Information Technology									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
830000	Accounting	1	10-12						31
831000	Adv Accounting	1	11-12	Accounting					31
829700	Adv Keyboarding	0.5	9-12	Keyboarding or Keyboarding Proficiency					31
835700	Business Law	0.5	10-12						31
836700	Business Management	0.5	10-12						32
828001	Computer Info Systems	1	9-12	Keyboarding or Keyboarding Proficiency					32
828002	Adv Comp Info Sys	1	10-12	Computer Info Systems					32
839001	Design, Multimedia & Web Technologies	1	10-12						32
839002	Adv Design, Multimedia & Web Technologies	1	11-12	Design, Multimedia & Web Technologies					32
823V00	Econ and Personal Finance Virtual Loudoun	1	9-12						32
821000	Intro to Business & Marketing	1	9-11						32
894101	Intro to Cybersecurity	1	9-11						32
825000	Personal Finance	0.5	9-12						33
825V05	Personal Finance Virtual Loudoun	0.5	9-12						33
Family and Consumer Sciences									
844003	Intro to Early Childhood	1	9-11						33
844100	Early Childhood Ed I	2	10-12	Human Development recommended; TB test					33
844300	Early Childhood Ed Seminar I DE	2	10-12	Human Development recommended; TB test			✓		33
844306	Early Childhood Ed Seminar I DE	2	10-12	Human Development recommended; TB test				✓	33
844200	Early Childhood Ed II	2	11-12	Early Childhood I; TB test					33
846700	Fashion Design & Merchandising	0.5	9-12						34
846100	Fashion Careers I	2	10-11	Fashion Design & Merchandising					34
845200	Food Science and Dietetics	1	11-12	Co-requisite: Chemistry					34
845700	Gourmet Foods	0.5	9-12						34
845100	Gourmet Foods	1	9-12						34
846000	Human Development	0.5	9-12						34
840700	Independent Living	0.5	9-12						34
875101	Intro to Culinary Arts	1	9-11						34
847700	Intro to Housing & Interior Design	0.5	9-12						34
827700	Project Management	0.5	9-12						35
827000	Project Management	1	9-12						35
844004	Intro to Teacher Cadet	1	9-10						35
844002	Teacher Cadet	1	12	3.0 GPA, application, essay, teacher recommendation	✓				35
840002	Teacher Cadet DE	1	12	3.0 GPA, application, essay, teacher recommendation			✓		35

High School									
Marketing									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
821000	Intro to Business & Marketing	1	9-11						35
822000	Marketing Co-Op	2	11-12	Screening conference					35
822100	Marketing Non Co-Op	1	11-12	Screening conference					35
823000	Adv Marketing Co-Op	2	11-12	Marketing Co-Op or Non Co-Op					35
823100	Adv Marketing Non Co-Op	1	11-12	Marketing Co-Op or Non Co-Op					35
823001	Adv Marketing Co-Op Seminar DE	2	11-12	Marketing Co-Op or Non Co-Op			✓		36
823006	Adv Marketing Co-Op Seminar DE	2	11-12	Marketing Co-Op or Non Co-Op				✓	36
823101	Adv Marketing Non Co-Op Seminar DE	1	11-12	Marketing Co-Op or Non Co-Op			✓		36
823106	Adv Marketing Non Co-Op Seminar DE	1	11-12	Marketing Co-Op or Non Co-Op				✓	36
821100	Sports & Entertainment Mktg	1	10-12						36
Military Science									
848000	Naval Science I	1	9-12						36
849000	Naval Science II	1	10-12	Naval Science I					36
847000	Naval Science III	1	11-12	Naval Science II					36
845000	Naval Science IV	1	12	Naval Science III					36
Technology and Engineering									
810000	Aerospace Science I	1	10-12						36
810500	Aerospace Science II	1	11-12	Aerospace Science I					37
852000	Materials and Processes	1	9-12						37
852400	Manufacturing Systems I	1	10-12	Materials and Processes					37
852800	Manufacturing Systems II	1	11-12	Manufacturing Systems I					37
851000	Production Systems	1	12	Manufacturing Systems II					37
853000	Technical Drawing and Design	1	9-12						37
854000	Architectural Drawing and Design	1	10-12	Technical Drawing and Design					37
853500	Engineering Drawing and Design	1	10-12	Technical Drawing and Design					37
854500	Adv Drawing and Design	1	11-12	Engineering Drawing and Design or Architectural Drawing and Design					38
856000	Technology Foundations	1	9-12						38
857000	Technology Transfer	1	10-12	Technology Foundations					38
858000	Technology Assessment	1	11-12	Technology Transfer					38
English									
140300	English 9	1	9						38
140200	English 9 Honors	1	9		✓				38
140V00	English 9 Virtual Loudoun	1	9						38
150300	English 10	1	10	English 9					39
150200	English 10 Honors	1	10	English 9	✓				39
150V00	English 10 Virtual Loudoun	1	10	English 9					39
160300	English 11	1	11	English 10					39
160200	English 11 Honors	1	11	English 10	✓				39
160V00	English 11 Virtual Loudoun	1	11	English 10					39
160100	AP English Language and Composition	1	11	English 10		✓			39
170300	English 12	1	12	English 11					39
170V00	English 12 Academic	1	12	English 11					39

High School									
Course #	Course Title	Credit	Grade	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
170001	English 12 DE	1	12	English 11 or English Language and Composition			✓		39
170006	English 12 DE	1	12	English 11 or English Language and Composition				✓	39
170100	AP English Literature and Composition	1	12	English 11 or English Language and Composition		✓			39
160700	Creative Writing	0.5	9-12						40
160702	Fundamentals of Writing	0.5	9-12						40
185700	Etymology	0.5	9-12						40
192000	21 st Century Literacy Strategies I	1	9-12						40
192700	21 st Century Literacy Strategies I	0.5	9-12						40
193000	21 st Century Literacy Strategies II	1	10-12						40
193700	21 st Century Literacy Strategies II	0.5	10-12						40
187000	Intro to Journalism	1	9-12						40
188000	Newspaper Journalism I	1	10-12	Intro to Journalism					40
188002	Newspaper Journalism II	1	11-12	Newspaper Journalism I					40
188003	Newspaper Journalism III	1	12	Newspaper Journalism II					41
189001	Photojournalism I	1	10-12	Intro to Journalism					41
189002	Photojournalism II	1	11-12	Photojournalism I					41
189003	Photojournalism III	1	12	Photojournalism II					41
194700	Public Speaking	0.5	10-12						41
101100	Reading Strategies I	1	9-12						41
101200	Reading Strategies II	1	9-12						41
101300	Reading Strategies III	1	9-12						41
101400	Reading Strategies IV	1	9-12						41
160801	Writing Center I	1	10-12						41
160802	Writing Center II	1	11-12	Writing Center I					41
English Learners									
190011	EL Literacy I	1	9-12						42
190012	EL Literacy 2	1	9-12						42
394010	Newcomer English	1	9-12						42
395010	English as a World Language	1	9-12						42
197010	Adv English Language Learners	1	9-12						42
588005	Pre-Newcomer EL Math Concepts	1	9-12						42
588010	Newcomer EL Math Concepts	1	9-12						42
650310	Newcomer EL Science Concepts	1	9-12						43
770010	Newcomer EL Social Science Concepts	1	9-12						43
Fine Arts									
240000	Art I	1	9-12						43
241000	Art II	1	10-12	Art I					43
242000	Art III	1	11-12	Art II or Art 1 and 2 semester courses					43
243000	Art IV	1	12	Art III					43
249100	AP Studio Art	1	12	Art III		✓			44
247700	Survey of Art and Architecture Hist	0.5	9-12						44
248700	Survey of Art and Architecture Hist II	0.5	9-12						44
232700	Computer Graphic Design	0.5	10-12	Art I					44
231700	Drawing and Painting	0.5	10-12	Art I					44
245700	Photography	0.5	10-12	Art I					44
245600	Photography	1	10-12	Art I					44

High School									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
244700	Sculpture	0.5	10-12	Art I					45
260000	Music Appreciation	1	9-12						45
262000	Music Theory/Hist	1	9-12						45
262100	AP Music Theory/Hist	1	9-12	Successful completion of Music Theory/Hist and/or teacher recommendation		✓			45
270000	Instrument Methods	1	9-12	Teacher recommendation/audition					45
272000	Concert Band I	1	9-12	Teacher recommendation/audition					45
274000	Concert Band II	1	9-12	Teacher recommendation/audition					45
275004	Beginning Orchestra	1	9-12						45
275003	Intermediate Orchestra	1	9-12	Successful completion of LCPS middle school program, high school Beginning Orchestra, or teacher recommendation					45
275002	Adv Orchestra	1	9-12	Successful completion of Intermediate Orchestra, or teacher recommendation					46
275001	Artist Orchestra	1	9-12	Successful completion of Adv Orchestra, or teacher recommendation					46
276000	Jazz Ensemble	1	9-12	Teacher recommendation/audition					46
293000	Beginning Guitar	1	9-12						46
294000	Intermediate Guitar	1	9-12	Successful completion of Beginning Guitar, audition, or teacher recommendation					46
295000	Adv Guitar	1	9-12	Successful completion of Intermediate Guitar, audition, or teacher recommendation					46
296000	Artist Guitar	1	9-12	Successful completion of Adv Guitar, audition, or teacher recommendation					46
280000	Mixed Chorus	1	9-12						46
278000	Small Vocal Ensemble	1	9-12	Audition					47
282000	Advanced Mixed Chorus	1	9-12	Audition					47
284000	Men's Chorus	1	9-12	Audition					47
286000	Women's Chorus	1	9-12	Audition					47
284001	Men's Chorus	1	9-12						47
286001	Women's Chorus	1	9-12						47
Theatre Arts									
250000	Theater Arts I	1	9-12						47
251000	Theater Arts II	1	10-12	Theater Arts I or by audition/interview					47
252000	Theater Arts III	1	11-12	Theater Arts II or by audition/interview					47
253000	Theater Arts IV	1	12	Theater Arts III or by audition/interview					47
254000	Technical Theater I	1	9-12						48
255000	Technical Theater II	1	10-12	Technical Theater I					48
257000	Drama Projects: Musical Theatre	1	10-12	Theater Arts I and/or special permission by Theatre Arts Instructor					48
258000	Intro to Theatre Arts DE	1	11-12				✓		48
258006	Intro to Theatre Arts DE	1	11-12					✓	48
256000	Theatre History/Literature and Performance DE	1	12	Intro to Theatre Arts DE			✓		48
256006	Theatre History/Literature and Performance DE	1	12	Intro to Theatre Arts DE				✓	48

High School									
Health and Physical Education									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
440000	Health & PE 9	1	9						48
440V00	Health & PE 9 Virtual Loudoun	1	9						48
450000	Health & PE 10	1	10	Health & PE 9					49
450V00	Health & PE 10 Virtual Loudoun	1	10	Health & PE 9					49
453000	Classroom Driver Education	None	10	Health & PE 9					49
460000	Adv PE I	1	11-12	Health & PE 10					49
460700	Adv PE I	0.5	11-12	Health & PE 10					49
465000	Adv PE II	1	11-12	Health & PE 10					49
465700	Adv PE II	0.5	11-12	Health & PE 10					49
Mathematics									
542000	Algebra I Part 1	1	9-12	Mathematics 8					49
543000	Algebra I Part 2	1	9-12	Algebra I Part 1					50
540000	Algebra I	1	9-12	Successful completion of Grade 7 or Grade 8 Mathematics					50
540V00	Algebra I Virtual Loudoun	1	9-12	Successful completion of Grade 7 or Grade 8 Mathematics					50
557700	Algebra Intervention	0.5	9-12	Algebra I and teacher recommendation					50
591070	Personal Living & Finance	1	9-12	Mathematics 8					50
550000	Geometry	1	9-12	Algebra I					50
550V00	Geometry Virtual Loudoun	1	9-12	Algebra I					50
565000	Functions, Algebra, and Data Analysis	1	9-12	Algebra I					50-51
560000	Algebra II	1	9-12	Algebra I and Geometry					51
560V00	Algebra II	1	9-12	Algebra I and Geometry					51
571000	Algebra II/ Trigonometry	1	9-12	Algebra I and Geometry	✓				51
571V00	Algebra II/ Trigonometry Virtual Loudoun	1	9-12	Algebra I and Geometry	✓				51
597700	Statistics and Probability	0.5	10-12	Algebra II					51
599700	Discrete Mathematics	0.5	10-12	Algebra II					51
572000	Adv Functions and Modeling	1	10-12	Algebra II					51
585000	Adv Algebra/ Precalculus	1	10-12	Algebra II					51-52
585V01	Adv Algebra/ Precalculus Virtual Loudoun	1	10-12	Algebra II					51-52
586000	Mathematics Analysis	1	9-12	Algebra II/Trigonometry or Adv Algebra/Precalculus	✓				52
586V00	Mathematics Analysis Virtual Loudoun	1	9-12	Algebra II/Trigonometry or Adv Algebra/Precalculus	✓				52
593000	Computer Mathematics – Intro to Computer Science	1	9-12	Algebra II					52
595100	AP Computer Science A	1	10-12	Computer Mathematics and Algebra II or principal permission		✓			52
585100	AP Calculus AB	1	11-12	Mathematical Analysis or Adv Algebra/Precalculus		✓			52
586100	AP Calculus BC	1	11-12	Mathematical Analysis or Calculus AB AP		✓			52
598100	AP Statistics	1	9-12	Algebra II		✓			53

High School									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
583002	Multivariable Calculus	1	11-12	Calculus BC AP – Students must receive a 3 or higher on the AP exam					53
583000	Multivariable Calculus DE	1	11-12	Calculus BC AP – Students must receive a 3 or higher on the AP exam			✓		53
583006	Multivariable Calculus DE	1	11-12	Calculus BC AP – Students must receive a 3 or higher on the AP exam				✓	53
Science									
640300	Earth Science Academic	1	9-10						53
640V00	Earth Science Virtual Loudoun	1	9-12						53
640200	Research Earth Science Honors	1	9-10		✓				53-54
64057V	Astronomy Virtual Loudoun	1	11-12						54
64000V	Oceanography Virtual Loudoun	1	11-12						54
650300	Biology Academic	1	10						54
650V00	Biology Virtual Loudoun	1	10						54
650200	Research Biology Honors	1	9-12		✓				54
655100	AP Biology	1	10-12	Biology Research or Academic <i>and</i> Chemistry Research or Academic (completed or taken concurrently). Must attain a passing score on the Biology SOL test		✓			54
6551DE	Biology DE/AP	1	10-12	Biology—Research or Academic and Chemistry—Research or Academic (completed or taken concurrently). Students must attain a passing score on the Biology SOL Test.		✓			54-55
660000	Chemistry	1	10-12	Algebra I. Students must attain a passing score on the Algebra I SOL test					55
660V00	Chemistry Virtual Loudoun	1	10-12	Algebra I. Students must attain a passing score on the Algebra I SOL test					55
661000	Research Chemistry Honors	1	10-12	Algebra I. Students must attain a passing score on the Algebra I SOL test	✓				55
665100	AP Chemistry	1	11-12	Chemistry Academic or Research. Students must attain a passing score on the Chemistry SOL test		✓			55
6651DE	Chemistry DE/AP	1	10-12	Biology—Research or Academic and Chemistry—Research or Academic (completed or taken concurrently). Students must attain a passing score on the Chemistry SOL Test.		✓			55
656000	Environmental Science	1	11-12	Two science credits (Earth Science and Biology suggested). Successful performance on two science SOL tests					55
674200	AP Environmental Science	1	11-12	Earth Science Academic or Research. Students must attain a passing score on the Earth Science and Biology SOL tests		✓			56

High School									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
673000	Conceptual Physics	1	10-12	Algebra I. Students must attain a passing score on the Algebra I SOL test					56
670000	Physics	1	11-12	Algebra II					56
670V00	Physics Virtual Loudoun	1	11-12	Algebra II					56
675100	AP Physics C	1	11-12	Physics; Corequisite: Calculus		✓			56
670010	Physics DE	1	11-12	Algebra II			✓		56
670016	Physics DE	2	11-12	Algebra II				✓	56
670201	Geospatial Science	1	12						56-57
670200	Geospatial Science DE	1	11-12				✓		56-57
670206	Geospatial Science DE	1	11-12					✓	56-57
670300	Geospatial Science II DE	1	12	Geospatial Science and JMU faculty approval			✓		57
670306	Geospatial Science II DE	1	12	Geospatial Science and JMU faculty approval				✓	57
680000	Independent Science Research	1	11-12	Completion of at least two Science disciplines	✓				57
680100	Independent Science Research DE	1	11-12	Completion of at least two Science disciplines			✓		57
680106	Independent Science Research DE	1	11-12	Completion of at least two Science disciplines				✓	57
680200	Independent Science Research II DE	1	11-12	Independent Science Research DE			✓		57-58
680206	Independent Science Research II DE	1	11-12	Independent Science Research DE				✓	57-58
Social Science									
740300	World Hist/ Geography to 1500	1	9						58
740V00	World Hist/ Geography to 1500 Virtual Loudoun	1	9						58
740900	World Hist/ Geography to 1500 Pre-AP	1	9		✓				58
745300	World Hist/ Geography 1500 to Present	1	10						58
745V00	World Hist/ Geography 1500 to Present Virtual Loudoun	1	10						58
751000	AP World History	1	10-12	World History/Geography		✓			58
750300	United States and Virginia History	1	11						58
750V70	United States and Virginia History Virtual Loudoun	1	11						58
750002	United States History DE	1	11	Entrance/Skills test required			✓		58-59
750007	United States History DE	1	11	Entrance/Skills test required				✓	58-59
750100	AP United States History	1	11			✓			59
760300	United States/ Virginia Government	1	12						59
760V00	United States/ Virginia Government Virtual Loudoun	1	12						59
760001	United States/ Virginia Government DE	1	12				✓		59

High School									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
760006	United States/ Virginia Government DE	1	12					✓	59
762000	Combination AP United States Government and AP Comparative Government	1	12			✓			59-60
782700	Economics	0.5	10-12						60
782V05	Economics Virtual Loudoun	0.5	10-12						60
741210	Survey of African History	1	11-12						60
741200	Survey of African History DE	1	11-12				✓		60
741206	Survey of African History DE	1	11-12					✓	60
781100	Survey of Latin American History	1	11-12						60
781000	Survey of Latin American History DE	1	11-12				✓		60
781006	Survey of Latin American History DE	1	11-12					✓	60
782000	AP Micro and AP Macro Economics	1	11-12			✓			60
775000	Global Social Issues	0.5	11-12						60
741100	AP Human Geography	1	11-12			✓			61
784700	Modern International Relations	0.5	11-12						61
786700	Psychology	0.5	11-12						61
786V00	Psychology Virtual Loudoun	0.5	11-12						61
787100	AP Psychology	1	11-12			✓			61
741300	The World of Ideas	0.5	11-12						61
741400	World Religions	0.5	11-12						61
World Languages and Cultures									
380000	American Sign Language I	1	9-12						62
382000	American Sign Language II	1	10-12	American Sign Language I					62
383000	American Sign Language III	1	11-12	American Sign Language II					62
384800	American Sign Language IV Honors	1	11-12	American Sign Language III or teacher recommendation	✓				62
384500	American Sign Language DE	1	11-12	American Sign Language III or teacher recommendation			✓		62
384506	American Sign Language DE	1	11-12	American Sign Language III or teacher recommendation				✓	62
340000	French I	1	7-12						62
34100V	French I Virtual Loudoun	1	7-12						62
342000	French II	1	8-12	French I					62
34200V	French II Virtual Loudoun	1	8-12	French I					62
343000	French III	1	9-12	French II					62
34300V	French III Virtual Loudoun	1	9-12	French II					62
344000	French IV Honors	1	10-12	French III	✓				63
345000	French V Honors	1	10-12	French IV Honors	✓				63
345100	AP French	1	10-12	French V Honors		✓			63
370000	German I	1	7-12						63
37100V	German I Virtual Loudoun	1	7-12						63
372000	German II	1	8-12	German I					63
37200V	German II Virtual Loudoun	1	8-12	German I					63
373000	German III	1	9-12	German II					63
374000	German IV Honors	1	10-12	German III	✓				63
375000	German V Honors	1	10-12	German IV Honors	✓				63

High School									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
375100	AP German	1	10-12	German V Honors		✓			64
350000	Latin I	1	7-12						64
35100V	Latin I Virtual Loudoun	1	7-12						64
352000	Latin II	1	8-12	Latin I					64
35200V	Latin II Virtual Loudoun	1	8-12	Latin I					64
353000	Latin III	1	9-12	Latin II					64
354000	Latin IV Honors	1	10-12	Latin III	✓				64
355000	Latin V Honors	1	10-12	Latin IV Honors	✓				64
356000	Latin V DE	1	10-12	Latin IV Honors			✓		64
356006	Latin V DE	1	10-12	Latin IV Honors				✓	64
359100	AP Latin	1	10-12	Latin V Honors		✓			64
321000	Mandarin Chinese I	1	9-12						64-65
396V00	Mandarin Chinese I Virtual Loudoun	1	9-12						64-65
331000	Mandarin Chinese II	1	10-12	Mandarin Chinese I					65
397V00	Mandarin Chinese II Virtual Loudoun	1	10-12	Mandarin Chinese I					65
334000	Mandarin Chinese III	1	11-12	Mandarin Chinese II					65
367000	Spanish for Fluent Speakers I	1	7-12						65
367300	Spanish for Fluent Speakers II	1	8-12	Spanish for Fluent Speakers I or Placement Test					65
367500	Spanish for Fluent Speakers III Honors	1	9-12	Spanish for Fluent Speakers II or Placement Test	✓				65
360000	Spanish I	1	7-12						65
36100V	Spanish I Virtual Loudoun	1	7-12						65
362000	Spanish II	1	8-12	Spanish I					65
36200V	Spanish II Virtual Loudoun	1	8-12	Spanish I					65
363000	Spanish III	1	9-12	Spanish II					65
36300V	Spanish III Virtual Loudoun	1	9-12	Spanish II					65
364000	Spanish IV Honors	1	10-12	Spanish III	✓				66
365000	Spanish V Honors	1	10-12	Spanish IV Honors	✓				66
365100	AP Spanish	1	10-12	Spanish V honors or Spanish for Fluent Speakers II Honors		✓			66
365200	AP Spanish Literature & Culture	1	11-12	Spanish IV Honors or Spanish for Fluent Speakers III Honors		✓			66
Other Courses Offered									
099900	AP Seminar	1	10-12			✓			66
092000	AVID 1	1	9						66
093000	AVID 2	1	10	AVID 1 recommended					66
094000	AVID 3	1	11	AVID 2					67
095000	AVID 4	1	12	AVID 3					67
080040	Basic Skills	1	9-12						67
080045	Basic Skills	0.5	9-12						67
080570	Career Pathways	1	10-12						67
071000	SAT Preparation	0.5	10-12						67

High School									
Academies of Loudoun									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
AET - Mathematics									
566100	AET Integrated Mathematics I	1	9		✓				69
565200	AET Integrated Mathematics II	1	10	AET Integrated Math I	✓				69
556300	AP AET Calculus AB	1	11-12	AET Integrated Math II or Math Analysis		✓			69
566400	AP AET Calculus BC	1	11-12	AET Integrated Math II or Math Analysis		✓			69
AET – Science									
667100	AET Integrated Science I	1	9		✓				69
667200	AET Integrated Science II	1	10	AET Integrated Science I	✓				69
671300	AET Physics	1	9		✓				69
661500	AET Research Chemistry	1	10		✓				70
668000	AET AP Computer Science A	1	10	AET Information Technology & Computer Science		✓			70
671400	AET AP Physics C	1	11	AET Integrated Science II		✓			70
855103	AET Engineering Studies III, Junior Research	1	11	AET Engineering Studies II	✓				70
668100	AET Computer Science Investigations, Junior Research	1	11	AET AP Computer Science	✓				70
AET – Specialty Courses									
829300	AET Information Technology & Computer Science	1	9		✓				70
855101	AET Engineering Studies I	1	9		✓				70-71
855102	AET Engineering Studies II	1	10		✓				71
824201	AET Entrepreneurship I	1	9		✓				71
824202	AET Entrepreneurship II	1	10	AET Entrepreneurship I	✓				71
AOS - Mathematics									
563001	AOS Mathematical Analysis and Computational Modeling I	1	9		✓				71
563002	AOS Mathematical Analysis and Computational Modeling II with Statistics	1	10		✓				71
561100	AOS AP Calculus AB	1	11-12			✓			72
571100	AOS AP Calculus BC	1	11-12			✓			72
583100	AOS Multivariable Calculus	1	12			✓			72
583001	AOS Multivariable Calculus DE	1	12				✓		72
583007	AOS Multivariable Calculus DE	1	12					✓	72
584100	AOS Multivariable Calculus with Topics from Differential Equations	1	12		✓				72

High School									
AOS - Science									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
664900	AOS Integrated Science I	1	9		✓				72
645900	AOS Integrated Science II	1	9	Integrated Science I	✓				72
654900	AOS Integrated Science III	1	10	AOS Integrated Science I and II	✓				72
652900	AOS Biology	1	11		✓				73
651900	AOS Sophomore Science Research	1	10	AOS Integrated Science I and II	✓				73
661900	AOS Junior Science Research	1	11	AOS Sophomore Science Research	✓				73
671900	AOS Senior Science Research	1	12	AOS Junior Science Research	✓				73
664100	AOS AP Biology	1	12			✓			73
669100	AOS AP Chemistry	1	12			✓			73
674100	AOS AP Env Science	1	12			✓			73
662100	AOS AP Physics	1	12			✓			74
MATA Specialty Courses									
887300	MATA Admin of Justice I DE	3	11-12				✓		74
887306	MATA Admin of Justice I DE	3	11-12					✓	74
887400	MATA Admin of Justice II DE	3	11-12	MATA Admin of Justice I DE			✓		74
887406	MATA Admin of Justice II DE	3	11-12	MATA Admin of Justice I DE				✓	74
867100	MATA Auto Collision Repair Technology I	3	11-12						74
867200	MATA Auto Collision Repair Technology II	3	11-12	MATA Auto Collision Repair Technology I					74
862100	MATA Auto Servicing Technology I	3	11-12						74-75
862200	MATA Auto Servicing Technology II	3	11-12	MATA Auto Servicing Technology I					75
885200	MATA Biotechnology	3	11-12						75
865100	MATA Building Construction I	3	11-12						75
865200	MATA Building Construction II	3	11-12	MATA Building Construction I					75
895100	MATA CISCO I DE	0.75	11-12				✓		75
895106	MATA CISCO I DE	0.75	11-12					✓	75
895200	MATA CISCO II DE	0.75	11-12	MATA CISCO I DE			✓		75
895206	MATA CISCO II DE	0.75	11-12	MATA CISCO I DE				✓	75
895300	MATA CISCO III DE	0.75	11-12	MATA CISCO II DE			✓		75
895306	MATA CISCO III DE	0.75	11-12	MATA CISCO II DE				✓	75
895400	MATA CISCO IV DE	0.75	11-12	MATA CISCO III DE			✓		75
895406	MATA CISCO IV DE	0.75	11-12	MATA CISCO III DE				✓	75
893003	MATA Computer & Digital Animation I DE	3	11				✓		76
893007	MATA Computer & Digital Animation I DE	3	11					✓	76
839006	MATA Computer & Digital Animation II	3	12						76
898500	MATA Computer Integrated Engineering & Design (CIED) I DE	3	11				✓		76

High School									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
898506	MATA Computer Integrated Engineering & Design (CIED) I DE	3	11					✓	76
873700	MATA Cosmetology I	3	11						76
874700	MATA Cosmetology II	3	11	MATA Cosmetology I					76
874800	MATA Cosmetology III	3	12	MATA Cosmetology II					76
875100	MATA Culinary Arts I	3	11-12						76-77
875200	MATA Culinary Arts II	3	11-12	MATA Culinary Arts I					77
894100	MATA Cybersecurity DE	3	11				✓		77
894106	MATA Cybersecurity DE	3	11					✓	77
859400	MATA Emergency Medical Technician I DE	3	11-12				✓		77
859406	MATA Emergency Medical Technician I DE	3	11-12					✓	77
859500	MATA Emergency Medical Technician II DE	3	11-12	MATA Emergency Medical Technician I DE			✓		77
859506	MATA Emergency Medical Technician II DE	3	11-12	MATA Emergency Medical Technician I DE				✓	77
885100	MATA Environmental Plant Sciences DE	3	11-12				✓		77
895106	MATA Environmental Plant Sciences DE	3	11-12					✓	77
859600	MATA Firefighter I DE	3	11-12	Must be affiliated with a volunteer fire or rescue department in Loudoun County			✓		77-78
859606	MATA Firefighter I DE	3	11-12	Must be affiliated with a volunteer fire or rescue department in Loudoun County				✓	77-78
859700	MATA Firefighter II DE	3	11-12	MATA Firefighter I			✓		78
859706	MATA Firefighter II DE	3	11-12	MATA Firefighter I DE				✓	78
p879100	MATA Graphic Communications I	3	11-12						78
879200	MATA Graphic Communications II	3	11-12	MATA Graphic Communications I					78
881100	MATA Heating, Ventilation and Air Conditioning I	3	11-12						78
881200	MATA Heating, Ventilation and Air Conditioning II	3	11-12	MATA Heating, Ventilation and Air Conditioning I					78
861000	MATA Introduction to Health and Medical Sciences	3	10	Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)					79
898100	MATA Masonry I	3	11-12						79
898200	MATA Masonry II	3	11-12	MATA Masonry I					79
861200	MATA Medical Laboratory Technology I DE	3	11	Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)			✓		79

High School									
Course #	Course Title	Credit	Grade(s)	Prerequisite	Weight 0.5	AP Weight 1.0	DE Weight 0.5	DE Weight 1.0 graduating class 2020 and beyond	Page
861206	MATA Medical Laboratory Technology I DE	3	11	Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)				✓	79
861701	MATA Medical Laboratory Technology II	3	12	MATA Medical Laboratory Technology I					79
891000	MATA Nail Design Technology	3	12	MATA Cosmetology III					79
861301	MATA Pharmacy Technology I	3	11	Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)					79
862300	MATA Pharmacy Technology II DE	3	12	MATA Pharmacy Technology I			✓		79
862306	MATA Pharmacy Technology II DE	3	12	MATA Pharmacy Technology I				✓	79-80
888100	MATA Practical Nursing I	3	11-12	Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)					80
888200	MATA Practical Nursing II	3	11-12	MATA Practical Nursing I					79-80
888300	MATA Practical Nursing III	3	12	MATA Practical Nursing II					
861400	MATA Radiology Technology I DE	3	11	Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)			✓		80
861406	MATA Radiology Technology I DE	3	11	Student's current immunization record; 2-step PPD by June 15, 2018; and Proof of medical insurance (private or school-purchased)				✓	80
861501	MATA Radiology Technology II	3	12	MATA Radiology Technology I					80
893100	MATA Television Production I/Digital Moviemaking I	3	11-12						80
893200	MATA Television Production I/Digital Moviemaking II	3	11-12	MATA Television Production I/Digital Moviemaking I					80-81
885401	MATA Veterinary Science I	3	11-12						81
885402	MATA Veterinary Science II	3	11-12	MATA Veterinary Science I					81
896100	MATA Welding I DE	3	11-12				✓		81
896106	MATA Welding I DE	3	11-12					✓	81
896200	MATA Welding II DE	3	11-12	MATA Welding I DE			✓		81
896206	MATA Welding II DE	3	11-12	MATA Welding I DE				✓	81



Loudoun County Public Schools
21000 Education Court / Ashburn, VA