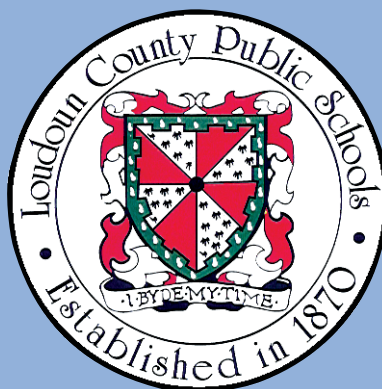


# PROGRAM OF STUDIES

## High School

*Academic Year 2012–2013*



**Loudoun County Public Schools**

21000 Education Court ■ Ashburn, Virginia 20148



Edgar B. Hatrick, Ed. D.  
Division Superintendent

## LOUDOUN COUNTY PUBLIC SCHOOLS

### OFFICE OF THE SUPERINTENDENT

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

Dear Students and Parents:

Your *High School Program of Studies* contains valuable information to help you in planning your course of study. You are fortunate to have a wide variety of courses from which to choose, and I encourage you to take full advantage of these courses in preparing yourself for your life after graduation from high school.

Guidance counselors, teachers, and principals are anxious to help you in making wise choices, and I hope that you will seek their assistance in answering any questions you may have about this very important decision making process. You should take time to consider your goals, interests, abilities, and graduation requirements in developing your personal program of study.

I also encourage you to take time to review the information presented in the first pages of this booklet about such matters as diploma requirements and grading.

It is clear that upon graduation from high school you will be entering a world different from the one we know today. The educational opportunities offered in high school are designed to help you develop the skills you will need to live in that changing world, but the final responsibility for taking advantage of the opportunities provided for you rests with you, the student. I assure you that all of the staff in the schools will help you meet your goals.

I wish you every success in your high school years.

Sincerely,

Edgar B. Hatrick  
Superintendent

**LOUDOUN COUNTY SCHOOL BOARD—2012**

**DR. EDGAR B. HATRICK**  
*Superintendent of Schools*

**THOMAS E. REED**  
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*Sterling District*

**LOUDOUN COUNTY HIGH SCHOOLS**

**BRIAR WOODS HIGH SCHOOL**  
 22525 Belmont Ridge Road  
 Ashburn, Virginia 20148  
*Phone 703-957-4400*  
 Edward A. Starzenski, Principal  
 David Royhab, Director of Guidance

**BROAD RUN HIGH SCHOOL**  
 21670 Ashburn Road  
 Ashburn, Virginia 20147  
*Phone 571-252-2300*  
 Douglas A. Anderson, Principal  
 Robert Yarborough, Director of Guidance

**JOHN CHAMPE HIGH SCHOOL**  
 41535 Sacred Mountain Street  
 Aldie, VA 20105  
*Phone 703-722-2680*  
 John G. Gabriel, Principal  
 TBD, Director of Guidance

**DOMINION HIGH SCHOOL**  
 21326 Augusta Drive  
 Sterling, Virginia 20164  
*Phone 571-434-4400*  
 Dr.W. John Brewer, Principal  
 Kevin Terry, Director of Guidance

**FREEDOM HIGH SCHOOL**  
 25450 Riding Center Drive  
 South Riding, Virginia 20152  
*Phone 703-957-4300*  
 Christine M. Forester, Principal  
 Kenneth Christopher, Director of Guidance

**HERITAGE HIGH SCHOOL**  
 520 Evergreen Mill Road, SE  
 Leesburg, Virginia 20175  
*Phone 571-252-2800*  
 Jeffrey R. Adam, Principal  
 Jeannine Cummings, Director of Guidance

**LOUDOUN COUNTY HIGH SCHOOL**  
 415 Dry Mill Road, S.W.  
 Leesburg, Virginia 20175  
*Phone 571-252-2000*  
 William E. Oblas, Principal  
 Dan Croyle, Director of Guidance

**LOUDOUN VALLEY HIGH SCHOOL**  
 340 N. Maple Avenue  
 Purcellville, Virginia 20132  
*Phone 540-751-2400*  
 Susan A. Ross, Principal  
 LeeAnne Johnson, Director of Guidance

**PARK VIEW HIGH SCHOOL**  
 400 W. Laurel Avenue  
 Sterling, Virginia 20164  
*Phone 571-434-4500*  
 Dr. Virginia M. Minshe, Principal  
 Anthony Bauer, Director of Guidance

**POTOMAC FALLS HIGH SCHOOL**  
 46400 Algonkian Parkway  
 Potomac Falls, Virginia 20165  
*Phone 571-434-3200*  
 Janice Koslowski, Principal  
 Tamara Christman, Director of Guidance

**STONE BRIDGE HIGH SCHOOL**  
 43100 Hay Road  
 Ashburn, Virginia 20147  
*Phone 571-252-2200*  
 James E. Person, Principal  
 Tim Lucas, Director of Guidance

**TUSCARORA HIGH SCHOOL**  
 801 N. King Street  
 Leesburg, Virginia 20176  
*Phone 571-252-1900*  
 Pamela Paul-Jacobs, Principal  
 Gabrielle Carpenter, Director of Guidance

**WOODGROVE HIGH SCHOOL**  
 36811 Allder School Road  
 Purcellville, Virginia 20132  
*Phone 540-751-2600*  
 Ric Gauriloff, Principal  
 Geri Fiore, Director of Guidance

**OTHER SCHOOLS FOR HIGH SCHOOL STUDENTS OF LOUDOUN COUNTY**

**DOUGLASS SCHOOL**  
 407 E. Market Street  
 Leesburg, Virginia 20176  
*Phone 571-252-2060*  
 Dr. Jack Robinson, Principal  
 Juliana Baker, Sharon Wozny,  
 Counselors

**LOUDOUN ACADEMY OF SCIENCE**  
 21326 Augusta Drive  
 Sterling, VA 20164  
*Phone 571 434-4470*  
 George J. Wolfe,  
 Science Academy Director  
 Jayne C. Fonash,  
 Director of Guidance

**MONROE TECHNOLOGY CENTER  
 AND THE LOUDOUN GOVERNOR'S  
 CAREER AND TECHNICAL ACADEMY**  
 715 Childrens Center Road, SW  
 Leesburg, Virginia 20175  
*Phone 571-252-2080*  
 Wagner Grier, Principal  
 Stacie Mininberg,  
 Placement Coordinator  
 Michelle Trudel, Counselor

**THOMAS JEFFERSON HIGH SCHOOL  
 FOR SCIENCE AND TECHNOLOGY**  
 6560 Braddock Road  
 Alexandria, Virginia 22312  
*Phone 703-750-8300*  
 Evan Glazer, Principal

**PURPOSE OF THIS PROGRAM OF STUDIES**

- This educational planning guide is designed to:
- help students and their parents make informed choices about high school courses,
  - realize that kindergarten through high school performance relates to future goals,
  - understand Virginia graduation requirements,
  - and assist students in planning and refining their plans of study.

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



Loudoun County Public Schools will open CLARITY—a parent portal to view student assignments, assessments, resources and grades in the 2012–2013 school year. The CLARITY portal is intended to open communication between teachers, students and parents. Authorization forms requesting access will be posted on each school’s website in Fall 2012.

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**ADMINISTRATIVE OFFICES**  
 21000 Education Court  
 Ashburn, Virginia 20148



## GENERAL INFORMATION

### SELECTING COURSES

Every student develops an educational plan in the sixth grade. One copy of the plan is sent to the parents for their review, and another copy is maintained in the guidance department.

Each year students review and revise the plans as they make decisions about courses needed for the next school year.

Students and their parents should carefully review the course descriptions in this booklet. Questions about the courses should be directed to counselors, teachers, or department chairpersons.

### INDIVIDUALS WHO CAN HELP WITH COURSE & CAREER DECISIONS

**Parents** have the greatest influence on their child's life.

**Counselors** help by:

- providing information about courses and the decision-making process,
- explaining and counseling about graduation requirements, including Standards of Learning requirements for standard and verified units of credit,
- assisting in developing academic and career plans,
- arranging interest inventories, aptitude tests, and college admissions tests,
- interpreting standardized tests, and
- assisting in the college application process.

**Teachers** teach the skills necessary for academic and career success, can help students see their strengths and weaknesses, and can make recommendations based on them.

**Career Centers** help by scheduling speakers and providing information on:

- summer programs
- Job-for-a-Day for Juniors
- careers
- military, career, trade, and technical schools
- colleges and universities
- financial aid

**School Libraries** provide additional resources for career and college planning.

**Community Members** offer opportunities for volunteer activities and their ideas about career options and courses that have made a difference in their lives.

### COURSE SELECTION CHANGES

Students are expected to select their courses and to adhere to their selections. In special situations, the principal may consider individual requests for changes.

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

### SUBJECT LOAD

Students in Grades 9-11 are expected to be enrolled in seven credit subjects or their equivalent. Any variation requires the principal's permission.

### DROPPING SUBJECTS

A student who wishes to drop a subject may do so with the permission of the parents and principal/counselor at any time up to one week after the issuance of the report card for the course for the first marking period.

Such approved dropped courses will not appear on the scholastic record or be calculated in the grade point average.

There is no assurance that a student who drops a course will be able to add another credit bearing course.

### COURSE CANCELLATIONS

Any elective course that does not have sufficient enrollment in a particular school will be canceled. Some courses with low enrollment may be offered in alternate years or not at all.

### ACCESS TO COURSES

As required by federal laws and regulations, the Loudoun County School Board does not discriminate on the basis of gender, color, race, religion, handicapping conditions, or national origin in employment or in its educational programs and activities.

### SUMMER SCHOOL GRADUATION

Students completing graduation requirements in a state-accredited summer school will be eligible for a diploma. The last school attended during the regular session will award the diploma.

### ACTIVITY & ATHLETIC PARTICIPATION

In order 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.

Students who are planning to participate in Division I and II interscholastic sports in college should see their school counselors and/or athletic directors to learn about NCAA regulations. These rules require certain high school courses, minimum grade point averages, and minimum college admissions testing scores before a student can be found eligible for participation.

### 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 will open CLARITY—a parent portal to view student assignments, assessments, resources and grades in the 2012–2013 school year. The CLARITY portal is intended to open communication between teachers, students, and parents. Authorization forms requesting access will be posted on each school's website in Fall 2012.

### 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 make up of 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.

## PROMOTION AND CREDIT INFORMATION

### PROMOTION

A student must have earned the minimum number of credits listed below to be promoted to the next grade.

A student's grade level is not subject to change during the school year.

Grade 10	5 credits
Grade 11	11 credits
Grade 12	Student must be scheduled to meet all graduation requirements by June.

### GRADUATION REQUIREMENTS

Students must meet the graduation requirements based on when they enter the ninth grade for the first time.

Requirements for graduation listed in this publication reflect those adopted by the Virginia Board of Education.

### FULL-YEAR COURSES

Students receive one standard unit of credit for each full-year course successfully completed.

Students will not receive any partial credit for a full-year course. For example, a student who passes a year-long course for a semester but fails for the year or a student who does not continue that subject beyond the first semester will not receive credit for the course; rather, the student must repeat the entire year to obtain credit for the course.

Credit will not be awarded unless a course is listed in the *Program of Studies*.

### ONE-SEMESTER COURSES

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

### NON-CREDIT ACTIVITIES

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

### COURSES ALREADY PASSED

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

### 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 will earn a high school credit for those courses in those subjects. Each credit will count toward graduation requirements and be included in the grade point average as well as class rank.

### Reminder To Parents of Rising Ninth Graders Entering High School:

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) omitted from the student's transcript. If the parent elects to have such a grade omitted, written notice of such election must be given by the parent to the guidance department of the high school the student will attend, on or before August 15 of the year in which the student finishes the

eighth 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)

### SEQUENTIAL ELECTIVES

Students seeking Standard and 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 and Applied Technology I and II. See a counselor for further details.

### FINE ARTS OR CAREER & TECHNICAL EDUCATION

A fine arts or career & technical education course is any state-approved course, grades 9-12, in Art, Drama, Newspaper Journalism, Photojournalism, Music, or Career and Technical Education (including Business, Family and Consumer Science, 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 give 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 counselors or by going to [www.doe.virginia.gov](http://www.doe.virginia.gov) and clicking on "Graduation Requirements," then "Substitute Tests for Verified Credit."

### STANDARD AND VERIFIED CREDITS

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

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

### SOL TESTS

**SOL TEST** This symbol indicates that the Virginia Standards of Learning (SOL) test(s) in that subject will be administered a few weeks before the conclusion of the course.

SOL tests at the end of certain courses determine whether the student receives a "verified credit," a certain number of which are required for graduation. The Virginia Board of Education has approved substitute tests and required scores as alternate assessments for certain SOL tests. Detailed information is available from a counselor or by going to [www.doe.virginia.gov](http://www.doe.virginia.gov) and clicking on "Testing and Standards of Learning" and then "Graduation Requirements."

Using the SOL Blueprints, publications that outline the information measured on the SOL test for each subject, teachers address SOL test information throughout the student's education in Virginia.

Scores on the SOL tests and approved substitute tests are the major factor in determining a school's accreditation status.

**Courses with End-of-Course SOL Tests:**

Algebra I (administered at the end of Algebra I and Algebra I, Part 2)  
 Algebra II  
 Algebra II and Trigonometry  
 Biology  
 Chemistry  
 Earth Science

Geometry  
 Reading (administered in English 11)  
 Writing (administered in English 11)  
 World History & Geography to 1500  
 World History & Geography, 1500 to Present  
 United States History

**STANDARD DIPLOMA COURSE REQUIREMENTS**

DISCIPLINE AREA	STANDARD CREDITS: effective with first-time ninth graders in 2003–2004 through 2010–2011	STANDARD CREDITS: effective with first-time ninth graders in 2011–2012 and beyond	VERIFIED CREDITS: effective for first-time ninth graders in 2003–2004 and beyond
English	4	4	2
Mathematics <sup>1</sup>	3	3	1
Laboratory Science <sup>2,6</sup>	3	3	1
History & Social Science <sup>3,6</sup>	3	3	1
Health & Physical Education	2	2	
Fine Arts or Career & Technical Education	1		
World Language, Fine Arts or Career & Technical Education <sup>7</sup>		2	
Economics and Personal Finance		1	
Electives <sup>4</sup>	6	4	
Student Selected Test <sup>5</sup>			1
<b>Total</b>	<b>22</b>	<b>22</b>	<b>6</b>

<sup>1</sup> **For students entering the ninth grade for the first time in 2003-2004 through 2010-2011:** Courses completed to satisfy this requirement shall be at or above the level of algebra and shall include at least two course selections from among: Algebra I, Geometry, Algebra II or other mathematics courses above the level of algebra and geometry. The Board may approve additional courses to satisfy this requirement.

▪ **For students entering the ninth grade for the first time in 2011-2012 and beyond:** 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.

<sup>2</sup> **For students entering the ninth grade for the first time in 2003-2004 through 2010-2011:** Courses completed to satisfy this requirement shall include course selections from at least two different science disciplines: earth sciences, biology, chemistry or physics. The Board may approve additional courses to satisfy this requirement.

▪ **For students entering the ninth grade for the first time in 2011-2012 and beyond:** 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.

<sup>3</sup> **For students entering the ninth grade for the first time in 2003-2004 through 2010-2011:** 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 may approve additional courses to satisfy this requirement.

▪ **For students entering the ninth grade for the first time in 2011-2012 and beyond:** 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.

<sup>4</sup> Courses to satisfy this requirement shall include at least two sequential electives as required by the Standards of Quality.

<sup>5</sup> **For students entering the ninth grade for the first time in 2003-2004 through 2010-2011:** A student may utilize additional tests for earning verified credit in computer science, technology, career and technical education or other areas as prescribed by the Board in 8 VAC 20-131-110.

▪ **For students entering the ninth grade for the first time in 2011-2012 and beyond:** 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.

<sup>6</sup> Students 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 of Education as an additional test to verify student achievement.

<sup>7</sup> **For students entering the ninth grade for the first time in 2011-2012 and beyond:** Pursuant to Section 22.1-253.13:4, Code of Virginia, credits earned for this requirement shall include one credit in fine or performing arts or career and technical education.

**ADVANCED STUDIES DIPLOMA COURSE REQUIREMENTS**

<b>DISCIPLINE AREA</b>	<b>STANDARD CREDITS: effective with first-time ninth graders in 2003–2004 through 2010–2011</b>	<b>STANDARD CREDITS: effective with first-time ninth graders in 2011–2012 and beyond</b>	<b>VERIFIED CREDITS: effective with ninth graders in 2000–2001 and beyond</b>
English	4	4	2
Mathematics <sup>1</sup>	4	4	2
Laboratory Science <sup>2</sup>	4	4	2
History & Social Science <sup>3</sup>	4	4	2
World Language <sup>4</sup>	3	3	
Health & Physical Education	2	2	
Fine Arts or Career & Technical Education	1	1	
Economics and Personal Finance		1	
Electives	2	3	
Student Selected Test <sup>5</sup>			1
<b>Total</b>	<b>24</b>	<b>26</b>	<b>9</b>

<sup>1</sup> **For students entering the ninth grade for the first time in 2003-2004 through 2010-2011:** Courses completed to satisfy this requirement shall be at or above the level of algebra and shall include at least three different course selections from among: Algebra I, Geometry, Algebra II or other mathematics courses above the level of Algebra II. The Board may approve additional courses to satisfy this requirement.

**For students entering the ninth grade for the first time in 2011-2012 and beyond:** Courses completed to satisfy this requirement shall include at least three different course selections from among: Algebra I, Geometry, Algebra II or other mathematics courses above the level of Algebra II. The Board shall approve courses to satisfy this requirement.

<sup>2</sup> **For students entering the ninth grade for the first time in 2003-2004 through 2010-2011:** Courses completed to satisfy this requirement shall include course selections from at least three different science disciplines from among: earth sciences, biology, chemistry or physics or completion of the sequence of science courses required for the International Baccalaureate Diploma. The Board may approve additional courses to satisfy this requirement.

**For students entering the ninth grade for the first time in 2011-2012 and beyond:** Courses completed to satisfy this requirement shall include course selections from at least three different science disciplines from among: 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.

<sup>3</sup> **For students entering the ninth grade for the first time in 2003-2004 through 2010-2011:** Courses completed to satisfy this requirement shall include U.S. and Virginia History, U.S. and Virginia Government, and two courses in either world history or geography or both. The Board may approve additional courses to satisfy this requirement.

**For students entering the ninth grade for the first time in 2011-2012 and beyond:** Courses completed to satisfy this requirement shall include U.S. and Virginia History, U.S. and Virginia Government, and two courses in either world history or geography or both. The Board shall approve courses to satisfy this requirement.

<sup>4</sup> Courses completed to satisfy this requirement shall include three years of one language or two years of two languages.

<sup>5</sup> **For students entering the ninth grade for the first time in 2003-2004 through 2010-2011:** A student may utilize additional tests for earning verified credit in computer science, technology, career or technical education or other areas as prescribed by the Board in 8 VAC 20-131-110.

**For students entering the ninth grade for the first time in 2011-2012 and beyond:** A student may utilize additional tests for earning verified credit in computer science, technology, career or technical education, economics or other areas as prescribed by the Board in 8 VAC 20-131-110.

**MODIFIED STANDARD DIPLOMA COURSE REQUIREMENTS**

This diploma is intended for certain students at the secondary level who have a disability and are unlikely to meet the credit requirements for a 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 8<sup>th</sup> 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: 8<sup>th</sup> 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:

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

DISCIPLINE AREA	STANDARD UNITS OF CREDIT
English	4
Mathematics <sup>1</sup>	3
Laboratory Science <sup>2</sup>	2
History & Social Science <sup>3</sup>	2
Health and Physical Education	2
Fine Arts or Career & Technical Education	1
Electives <sup>4</sup>	6
<b>Total</b>	<b>20</b>

<sup>1</sup> Courses 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.

<sup>2</sup> Courses 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.

<sup>3</sup> Courses 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.

<sup>4</sup> Courses to satisfy this requirement shall include a least two sequential electives in the same manner required for the Standard Diploma.

**STANDARD TECHNICAL DIPLOMA COURSE REQUIREMENTS**

DISCIPLINE AREA	STANDARD UNITS OF CREDIT	VERIFIED UNITS OF CREDIT
English	4	2
Mathematics <sup>1</sup>	3	1
Laboratory Science <sup>2,5</sup>	3	1
History and Social Science <sup>3,5</sup>	3	1
Health and Physical Education	2	
Fine Arts or World Language	1	
Economics and Personal Finance	1	
Career and Technical Education <sup>4</sup>	4	
Electives	1	
Student Selected Tests <sup>6</sup>		1
<b>Total</b>	<b>22</b>	<b>6</b>

<sup>1</sup> Courses completed to satisfy this requirement shall include at least three different course selections from among: Algebra I, Geometry, Algebra Functions and Data Analysis, or Algebra II or other mathematics courses above the level of Algebra II. The board shall approve courses to satisfy this requirement.

<sup>2</sup> Courses completed to satisfy this requirement shall include course selections from at least three different science disciplines from among: 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.

<sup>3</sup> 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.

<sup>4</sup> Courses completed to satisfy this requirement must include a career concentration as approved by the board. If a career concentration includes a specific assessment approved by the board and the student is eligible to take the assessment, then the student must take this assessment.

<sup>5</sup> Students 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 (i) the student selected verified credit and (ii) 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.

<sup>6</sup> 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.

**ADVANCED TECHNICAL DIPLOMA COURSE REQUIREMENTS**

DISCIPLINE AREA	STANDARD UNITS OF CREDIT	VERIFIED UNITS OF CREDIT
English	4	2
Mathematics <sup>1</sup>	4	2
Laboratory Science <sup>2</sup>	4	2
History and Social Science <sup>3</sup>	4	2
World Language <sup>4</sup>	3	
Health and Physical Education	2	
Economics and Personal Finance	1	
Fine Arts or Career & Technical Education	1	
Career & Technical Education <sup>5</sup>	3	
Student Selected Tests <sup>6</sup>		1
<b>Total</b>	<b>26</b>	<b>9</b>

<sup>1</sup> Courses completed to satisfy this requirement shall include at least three different course selections from among: Algebra I, Geometry, Algebra II, or other mathematics courses above the level of Algebra II. The board shall approve courses to satisfy this requirement.

<sup>2</sup> Courses completed to satisfy this requirement shall include course selections from at least three different science disciplines from among: 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.

<sup>3</sup> Courses completed to satisfy this requirement shall include U.S. and Virginia History, U.S. and Virginia Government, and two courses in either world history or geography or both. The board shall approve courses to satisfy this requirement.

<sup>4</sup> Courses completed to satisfy this requirement shall include three years of one language or two years of two languages.

<sup>5</sup> Courses completed to satisfy this requirement must include a career concentration as approved by the board. If a career concentration includes a specific assessment approved by the board and the student is eligible to take the assessment, then the student must take this assessment.

<sup>6</sup> A student may utilize additional tests for earning verified credit in computer science, technology, career or technical education, economics, or other areas as prescribed by the board in 8 VAC 20-131-110.

**I.E.P. Diploma**—awarded to students receiving special education services who meet the requirements specified in their

**OTHER GRADUATION CERTIFICATES AND DIPLOMAS**

Individualized Education Plan (IEP).

**Certificate of Program Completion**—awarded to those regular education students who meet all state requirements for graduation except passing the necessary Standards of Learning tests.

**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 (see page 2) of credit that 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 took in a school division prior to enrolling in LCPS will be weighted only if those courses are weighted as honors courses in LCPS. Transfer AP and IB courses are weighted if evidence is provided that the student took the related AP/IB exam in the course. For further details about transferring, log on to [www.doe.virginia.gov](http://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 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 2003-2004 or Later**

TIME OF TRANSFER	REQUIRED FOR STANDARD DIPLOMA	REQUIRED FOR ADVANCED STUDIES DIPLOMA
During 9 <sup>th</sup> Grade or Beginning of 10 <sup>th</sup>	22 standard units 6 verified units: 1 in Math 1 in Science 2 in English 1 in Social Science 1 Student Selected	24/26 standard units 9 verified units: 2 in Math 2 in Science 2 in English 2 in Social Science 1 Student Selected
During 10 <sup>th</sup> Grade or Beginning of 11 <sup>th</sup>	22 standard units 4 verified units: 1 in Math 1 in Science 1 in English 1 in Social Science	24/26 standard units 6 verified units: 1 in Math 1 in Science 2 in English 1 in Social Science 1 Student Selected
During 11 <sup>th</sup> Grade or Beginning of 12 <sup>th</sup>	22 standard units 2 verified units: 1 in English 1 Student Selected	24/26 standard units 4 verified units: 1 in English 3 Student Selected
During 12 <sup>th</sup> Grade	Students should be given every opportunity to earn a diploma. Counselors will work with students to examine options.	

## AWARDS FOR EXEMPLARY STUDENT PERFORMANCE

The following diploma seals may be awarded to students who demonstrate academic excellence and/or outstanding achievement:

**Governor's Seal**—for 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 will earn the student at least nine transferable college credits in Advanced Placement (AP), International Baccalaureate (IB), Cambridge, or dual enrollment courses

**Board of Education Seal**—for students who are receiving a Standard Diploma or Advanced Studies Diploma with an average grade of "A" or better.

**Board of Education Seal of Advanced Mathematics and Technology**—for students receiving either the Standard or Advanced Studies Diploma who satisfy all of the math requirements for the Advanced Studies Diploma with a "B" average or better **and** either pass an examination in a career and technical education field that confers certification from a recognized industry, trade, or professional association **or** acquire a professional license in a career or technical education field from the Commonwealth of Virginia **or** pass an examination approved by the Virginia Board of Education that confers college-level credit in a technology or computer science area. See a counselor for specifics about the requirements for this seal. If a student is taking a certification examination and will not know the result until after graduation, the student should notify his/her counselor. The seal can be mailed to the student.

**Career and Technical Education Seal**—for students receiving the Standard, Technical, Advanced Studies, or Advanced Technical Diploma who 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** 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** acquire a professional license in that career and technical education field from the Commonwealth of Virginia. See a counselor for specifics about the requirements for this seal. If a student is taking a certification examination and will not know the result until after graduation, he/she should notify the counselor. The seal can be mailed to the student.

**Excellence in Civics Education**—for students receiving either the Standard or Advanced Studies Diploma, the seal is designed to reward excellence in civics education and understanding of the state and federal constitutions and the democratic model of government. Students must earn a "B" or higher in VA and U.S. History and Government; complete fifty hours of voluntary participation in community service or extracurricular activities with a civics focus; and have good attendance and no disciplinary infractions.

Activities that qualify include volunteering for a charitable or religious organization that provides services to the poor, sick, or less fortunate; participating in Boy Scouts, Girl Scouts, or similar youth organizations; participating in political campaigns or government internships, or Boys State, Girls State, or Model General Assembly; participating in JROTC; and/or participating in school-sponsored extracurricular activities that have a civics focus. Any student who enlists in the U.S. military prior to graduation will be deemed to have met the community service requirement.

## 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, a grade of zero will be recorded for the remaining grading periods. The final grade will be recorded on the scholastic record card and included when calculating grade point average and class rank.
- Grades earned in Advanced Placement (AP) courses are "weighted" by adding 1.0 to the point value for the grade earned in a year-long course with the exception of a grade of "F," or if the student does not take the AP exam.
- All year-long Honors (H) courses, all designated Dual Enrollment (DE) courses, and all Academy of Science (AOS) courses are "weighted" by adding 0.5 to the point value for the grade.
- To determine class rank, grade points for all courses for which a grade has been recorded are totaled and divided by the total number of courses for which a student has received a semester or year's grade.
- A student must be enrolled in a Loudoun County public school for two full semesters in order to be eligible for first and second honor graduate designation (valedictorian or salutatorian).

## 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

## RECOMMENDED TESTING FOR COLLEGE-BOUND STUDENTS

### PSAT—PRELIMINARY SCHOLASTIC ASSESSMENT TEST

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

Students in the **ninth and tenth grade** can get a “jump on college.” The test shows firsthand the kinds of reading, math, and writing skills needed to succeed in college. It also provides practice for college admissions tests.

**Eleventh grade** students can enter special scholarship competitions such as the National Merit Scholarship Qualifying Test, National Achievement Program, and National Hispanic Scholars Program.

PSAT measures verbal and math reasoning skills and writing skills.

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

### SAT REASONING TEST

Eleventh and twelfth grade students should take the SAT Reasoning Test which measures critical reading, mathematics, and writing skills. A student should begin taking the test by the spring of the eleventh grade and may repeat the test several times.

Most colleges use the highest critical reading, math, and writing scores obtained, even if the three sub-scores were earned on separate days. Many colleges have indicated that they plan to require applicants to present writing scores.

The SAT tests are given several times each year at high schools in Loudoun County. Students must register about six weeks in advance of the test. Students may register on-line at [www.collegeboard.com](http://www.collegeboard.com). On-line registration allows students to learn whether space exists for testing at their preferred test center.

Registration bulletins for the test are available in the counseling office, and registration forms must be mailed, along with payment, to the College Board.

Free study and preparation materials are available at [www.collegeboard.com](http://www.collegeboard.com) and from the high school counseling office.

### AP—ADVANCED PLACEMENT

AP examinations are given in the spring on nationally standardized dates and 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 AP examinations. In LCPS, all students enrolled in AP classes are expected to complete the AP experience by taking the examinations near the end of the AP class. Depending upon School Board funding, there may be a fee charged for the elected AP examination. Financial hardships may be addressed with the local school Guidance Department.

The student’s transcript will reflect 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 and takes the related AP examination.

Students who elect to take an AP exam without taking the course may have their scores sent to the colleges to which they apply; however, units of credit will be awarded only to those students who complete the courses **and** take the related AP exam.

### 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.

The test should be taken towards the end of the completion of a subject. For example, if a student is completing Chemistry in Grade 11, he/she should take the SAT Subject Test in Chemistry in the spring of the eleventh grade.

Not all colleges require SAT Subject Tests; generally, the most competitive schools request these 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.

Registration materials are available in the counseling office. “SAT Subject Test Preparation Booklet,” a free booklet, available in the guidance office and on-line at [www.collegeboard.com](http://www.collegeboard.com), provides information about the test 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. Check with specific colleges to see whether they prefer ACT or SAT, and be sure to check whether a writing test is required. Registration materials and study guides are available on line at [www.act.org](http://www.act.org) and in the counseling office.

Some students find it helpful to take both the ACT and SAT since colleges will generally use the best scores.

### 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 require this test for second language speakers. Some colleges will accept the SAT II English as a Second Language test instead of the TOEFL.

### 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. It concentrates on academic and practical use of the language.

## SPECIAL PROGRAMS

### 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 expected to take the nationally standardized AP examinations. Colleges may award academic credit and/or special placement if a student earns a qualifying score on the exam. AP final grades are “weighted” by adding 1.0 to the point value for the grade if the student passes the course and takes the related examination.

### BENEFITS OF AP CLASSES

GAIN THE EDGE IN COLLEGE PREPARATION	STAND OUT IN THE COLLEGE ADMISSIONS PROCESS	BROADEN INTELLECTUAL HORIZONS
<ul style="list-style-type: none"> <li>■ Get a head start on college-level work.</li> <li>■ Improve writing skills and sharpen problem-solving techniques.</li> <li>■ Develop the study habits necessary for tackling rigorous course work.</li> </ul>	<ul style="list-style-type: none"> <li>■ Demonstrate maturity and readiness for college.</li> <li>■ Show willingness to push self academically.</li> <li>■ Emphasize commitment to academic excellence.</li> </ul>	<ul style="list-style-type: none"> <li>■ Explore the world from a variety of perspectives.</li> <li>■ Study subjects in greater depth and detail.</li> <li>■ Assume the responsibility of reasoning, analyzing, and understanding for one’s self.</li> </ul>

### AVID

AVID, or Advancement via Individual Determination, is a national program targeting students in the academic middle-B, C, and even D students—who have the desire to go to college and the willingness to work hard in rigorous high school courses. AVID students enroll in honors and Advanced Placement courses and an AVID elective course. During this elective, 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 enroll in the AVID elective course each year of high school.

### CLASSROOM DRIVER EDUCATION

Transfer students, students who failed the Driver Education portion of Health and PE 10, or students who have taken and passed Driver Education but failed the Department of Motor Vehicles written test after passing the 36 hour course, must re-take the classroom portion of Driver Education. Students should take a state-approved Classroom Driver Education course online (i.e., <http://www.vadriveredu.org/login/index.php>). An additional requirement of classroom Driver Education is a 90 minute Parent/Teen presentation, which is offered at every high school.

### DUAL ENROLLMENT

Students may take advantage of a program that allows them to meet the requirements for high school graduation while simultaneously earning college credits. In all cases, students must receive prior written approval by the participating high school and the college for particular courses to be taken.

### ENGLISH LANGUAGE LEARNERS (ELL)

Provisions are made for those students who need English as a Second Language instruction. Additional information is available from counselors. If the ELL program is located in a school other than the “home school,” transportation is provided to and from the designated sites for students.

In some situations, the student may need more than four years to complete credits needed for graduation from high school. The counselor can advise students and parents about planning the program of studies needed for graduation. See the ELL section of this booklet.

### 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.

### LCPS ACADEMY OF SCIENCE (AOS)

The mission of the LCPS Academy of Science is to provide an academic environment where students are encouraged to develop creative scientific endeavors of their own design, while having the opportunity to pursue a rich, well-rounded high school experience.

AOS students are selected through an application process. Rising ninth grade students are invited to attend after a competitive process that evaluates test scores, academic achievements, writing samples, teacher recommendations, and self-reported interests and activities.

Student motivation and interest in science are the most valuable characteristics of AOS students.

AOS courses are “weighted” by adding 0.5 to the point value for the grade.

### MONROE TECHNOLOGY CENTER AND THE LOUDOUN GOVERNOR’S CAREER AND TECHNICAL ACADEMY

Students seeking highly technical and specialized instructional programs can obtain industry-level certification and/or licensure through the programs at **Monroe Technology Center (MTC)**.

These programs allow students to pursue special interest areas and to receive industry-standard training that can lead to post-secondary educational opportunities or to a direct pathway into the workplace.

Students attend MTC on alternating days. Transportation is provided.

The **Loudoun Governor’s Career and Technical Academy** is housed at MTC. The Academy focuses on four career clusters and five pathway initiatives that are aligned with regional and state work force demands. The four specific career cluster areas are:

Agriculture, Food, and Natural Resources with a pathway in Plant Systems; Health Sciences with pathways in Diagnostic Services and Therapeutic Services; Science, Technology, Engineering, and Mathematics with a pathway in Engineering Technology; and Transportation, Distribution and Logistics with a pathway in Facility and Mobile Equipment Maintenance.

Academy goals and performance measures include:

- Improve academic achievement of Academy students by increasing academic rigor and relevance within selected career pathways.
- Increase completion of dual enrollment college coursework.
- Provide workplace readiness experiences through strong partnerships with businesses.
- Increase high school graduation rates.
- Reduce drop out rates.
- Increase enrollment and retention in postsecondary education.
- Increase the proportion of students completing a college and workplace ready curriculum in high school.
- Reduce the proportion of students requiring remediation in college.
- Increase the number of industry certifications awarded to high school students.
- Increase the number of graduates employed in high-wage, high-skilled careers.

Highlights of the academy program include:

- Dual enrollment opportunities are available through Northern Virginia Community College. Future dual enrollment and college credit opportunities will be discussed with other educational institution partners like the George Washington University and Shenandoah University.
- Academy students receive enhanced science, technology, engineering, and mathematics instruction via staff development opportunities with universities/colleges throughout the Commonwealth and curriculum enhancements. Partnerships with the Loudoun Academy of Science, as well as advisory and planning committee member participation will also support these efforts.
- The Health Science cluster pathways contain two new and innovative pathway programs. The Medical Laboratory Technology and Radiology Technology pathway programs have been developed through the support and partnership of the Claude Moore Charitable Foundation and the Inova Healthcare System. Loudoun County initiated the curriculum development within these Health Science areas in partnership with the Career and Technical Education Resource Center and the Virginia Department of Education.

- The Agriculture, Food and Natural Resources Plant Systems pathway is aligned with the global movement to develop more green technologies & practices to conserve and protect earth's natural resources.
- The Transportation, Distribution and Logistics Facility and Mobile Equipment Maintenance pathway will provide direct instruction in the development and maintenance of alternative fuels and hybrid vehicles.

### ONLINE COURSE OPPORTUNITIES

A student may apply for enrollment in selected high school credit courses if space is available with the approval of school guidance staff and the school's Principal. An online form is posted on the LCPS website or parents can contact their school's guidance 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.

### 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 from the principal an application 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:

#### **1. Early College Scholars**

#### **2. 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" or better average,
- 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 Loudoun County Public Schools with prior approval.

Early College Scholars receive a diploma seal and certificate from the Governor recognizing their achievement. To register, students and their parents should talk with their school counselor near the end of the 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 will continue after high school graduation.

Typically, students will continue to take industry-specific training at their local community college or Monroe Technology Center during the summer and fall after graduation. Up to one semester of technical training will be available to students tuition-free in the same calendar year after high school graduation as long as that semester allows them to complete the certification program.

### **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.

Students are selected to attend in 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 ninth graders. Replacements are selected for vacancies at the tenth grade level only.

### **WORLD LANGUAGE CREDIT FOR ENGLISH LANGUAGE LEARNERS**

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

## **SELECTION OF COURSES**

All students should choose challenging classes which 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 group to choose:

- previous performance in subject area,
- standardized test scores,
- commitment of the student, and
- recommendations from teachers, counselors, and principals.

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

**Honors & AP**—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**—Course content challenges students to master rigorous standards while providing individualized support.

## **STEPS TO READING AND USING THE PROGRAM OF STUDIES**

### **1 Select a Career Cluster/Path**

- Choose a career cluster/path that closely relates to your interests, skills, and strengths.
- Explore occupations that relate to your skills.
- Learn what education, skill, and knowledge are required.

### **2 Decide Your Diploma Type**

- Advanced Studies/Advanced Technical
- Standard/Standard Technical
- Modified Standard

### **3 Choose Courses that Relate to Your Career Path and Diploma Choice.**

## DUAL ENROLLMENT AGREEMENTS

### BACKGROUND OF AGREEMENTS

Loudoun County Public Schools has joined with Northern Virginia Community College (NOVA) and Shenandoah University to develop programs that allow qualified students to gain advanced standing in specific career and technical areas. The intent of the dual enrollment agreements is to provide opportunities for career ladder advancement through recognition of previous learning.

Students must demonstrate mastery of college-level skills gained through a rigorous high school program. This arrangement often means that students can enter the work force and/or pursue a college degree without loss of time or credit. Also, they avoid unnecessary duplication of effort.

The specific dual enrollments are mentioned in this booklet. Counselors and teachers in those subjects can provide information about specific requirements, credits, and application procedures. They are also available to answer questions and to discuss the programs and the opportunities they provide. Eligible students will receive college credit on an official college transcript.

*Dual enrollment is available for 11th and 12th grade students who meet minimum requirements on placement tests. In some cases, 10th grade students will have the opportunity to apply for a grade level exception by meeting criteria established by the college and/or university.*

### ICON BESIDE COURSES



Loudoun Governor's  
Career and Technical Academy

**NOVA**

Northern Virginia  
Community College



Shenandoah University

*The icons shown above appear beside courses for which dual enrollment college credit exists. Watch for them throughout the book.*

### ADMINISTRATION OF JUSTICE

**NOVA**

The student who completes Administration of Justice at Monroe Technology Center with a "B" or better in each course can receive three (3) credits for ADJ 110, ADJ 134, ADJ 105, and ADJ 120 for a total of twelve (12) credits.

### AUTO SERVICING TECHNOLOGY



**NOVA**

The student who completes Automotive Servicing Technology I and II at Monroe Technology Center with a "B" or better in each course, may receive up to twenty-six (26) credits. Automotive Servicing I students can earn, four (4) credits for AUT 266, four (4) credits for AUT 241, and four (4) credits for AUT 242. Automotive Servicing II students can earn two (2) credits for AUT 100, four (4) credits for AUT 265, four (4) credits for AUT 141, and four credits (4) for AUT 142.

### COMPUTER & DIGITAL ANIMATION



**NOVA**

The qualifying student who completes Computer & Digital Animation at Monroe Technology Center with a "B" or better can receive three (3) credits each for CAD 238, CAD 239, and ARC 123 for a total of nine (9) credits.

### COMPUTER INTEGRATED ENGINEERING AND DESIGN

**NOVA**

The qualifying student who successfully completes the Computer Integrated Engineering and Design Program at Monroe Technology Center will receive three (3) college credits each in CAD 238, EGR 115, and CAD 239 for a total of nine (9) credits.

### COMPUTER SYSTEMS TECHNOLOGY

**NOVA**

The student who successfully completes the Computer Systems Technology Program at Monroe Technology center with a "B" or better will receive three (3) college credits each from Northern Virginia Community College in ITN 106 *Micro Computer Operating Systems* and ITN 107 *Personal Computer and Hardware Troubleshooting* for a total of six (6) credits.

### EMERGENCY MEDICAL TECHNICIAN (EMT)

**NOVA**

The qualifying student who successfully completes Emergency Medical Technician (EMT) at Monroe Technology Center with a "B" or better can receive three (3) credits for EMS 111 *Emergency Medical Technician*, three (3) credits for EMS 120 *Emergency Medical Technician-Clinical* and one (1) credit for HLT 105 CPR for a total of seven (7) credits.

### ENVIRONMENTAL PLANT SCIENCE



**NOVA**

The qualifying student who completes Environmental Plant Sciences at Monroe Technology Center and successfully meets the requirements of the course can receive advanced placement in the two-year program Agriculture Technology program at Virginia Tech and/or receive three (3) college credits each from Northern Virginia Community College for HRT 100 *Introduction to Horticulture*, HRT 115 *Plant Propagation* and HRT 121 *Greenhouse Crop Production 1*.

### FIREFIGHTER

**NOVA**

The qualifying student who successfully completes Firefighter at Monroe Technology Center with a "B" or better can receive three (3) credits for FST 100 *Principles of Emergency Services*, three (3) credits for FST 111 *Hazardous Material Response*, and one (1) credit for HLT 105 CPR for a total of seven (7) credits.

## INTRODUCTION TO HEALTH AND MEDICAL SCIENCES



The qualifying student who completes Introduction to Health and Medical Sciences at Monroe Technology Center with a "B" or better can receive three (3) credits for HIM 111 and one (1) credit for HLT 105 CPR for a total of three (3) credits.

## RADIOLOGY I



The qualifying student who completes Radiology I at Monroe Technology Center with a "B" or better can receive two (2) credits for RAD 100.



## TEACHER CADET PROGRAM

The student who completes Teacher Cadet will receive four (4) elective credits from Shenandoah University that may be transferred to any college or university.

*Successful individuals in all careers should be able to work as part of a team, accept responsibility, read and understand complex information, communicate well in writing and speaking, accurately perform calculations, proficiently use computers to process information, and record and interpret data.*

## **CAREER CLUSTERS**

A Career Cluster is a grouping of occupations and broad industries based on commonalities.

### AGRICULTURE, FOOD & NATURAL RESOURCES

*Food Products and Processing Systems; Plant Systems; Animal Systems; Power, Structural & 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 & Investments; Business Finance; Accounting; Insurance; Banking Services*

## GOVERNMENT & PUBLIC ADMINISTRATION

*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 & Tourism; Recreation, Amusements & Attractions*

## HUMAN SERVICES

*Early Childhood Development & Services; Counseling & Mental Health Services; Family & 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 & Protective Services; Law Enforcement Services; Legal Services*

## MANUFACTURING

*Production; Manufacturing Production Process Development; Maintenance, Installation & Repair; Quality Assurance; Logistics & 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 & 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*

**ELECTIVES**

Electives are subjects not required in any area of the curriculum. Students may wish to look at the sample career paths for related high school courses.

Students will want to select courses that will provide them with a well-rounded education. Some courses may not be necessary in a particular career; however, the skills and information learned in those courses may provide greater understanding and appreciation and may increase one's quality of life.

Either the Technical Specialization or two Career and Technical Education Electives in the same area would count as sequential electives.

**CAREER & TECHNICAL EDUCATION SPECIALIZATION COURSES**

Technical Specialization Courses are those which provide students with specialized training and work force skills. Students will be prepared to enter directly into the work place and to pursue further education and training after high school.

Electives in career and technical education areas—business and information technology, family and consumer sciences, health occupations, marketing, technology education, and trade and industrial education—prepare students for technical specialization at the high school or at Monroe Technology Center.

**ECONOMICS AND PERSONAL FINANCE—  
A NEW GRADUATION REQUIREMENT FOR THE CLASS OF 2015.**

The Virginia Board of Education has added a new requirement for high school graduation. The freshman class of students who enter high school in 2011-2012 and beyond will have to successfully complete a 1-credit course in Economics and Personal Finance. In Loudoun County, students will be able to fulfill this requirement between sophomore year and the completion of senior year. LCPS will offer a 0.5-credit, semester course in Personal Finance, and a 0.5-credit, semester course in Economics. Students must complete both 0.5-credit courses before their expected graduation date.

*Alternatively,* students may take Personal Finance for a semester, and then take AP Economics as a *full year course* during their junior or senior years. If students choose this AP option, they **MUST** complete a semester of Personal Finance, *and* a **FULL YEAR** of AP Economics (Micro and Macro).

**SAMPLE FOUR YEAR PLAN OF STUDIES FOR  
STANDARD DIPLOMA AND CAREER PREPARATION**

*Students should choose electives based on their career cluster, career goals, and requirements for entry to further education.*

**GRADE 9**

COURSE	CREDIT
English 9	1
World History/Geography to 1500	1
Algebra I	1
Health/P.E. 9	1
Earth Science	1
Elective	1
Career & Technical Education Elective	1
<b>Total Credits</b>	<b>7</b>

**GRADE 10**

COURSE	CREDIT
English 10	1
World History/Geography 1500 to Present	1
Geometry	1
Health/P.E. 10	1
Biology	1
Elective (or: Class of 2015: Economics and Personal Finance)	1
Career & Technical Education Elective	1
<b>Total Credits</b>	<b>7</b>

**GRADE 11**

COURSE	CREDIT
English 11	1
U.S. & Virginia History	1
Algebra II or Functions	1
Chemistry or Physics	1
Career & Technical Education Specialization Course	3
<b>Total Credits</b>	<b>7</b>

**GRADE 12**

COURSE	CREDIT
English 12	1
U.S. & Virginia Government	1
Elective (or: Class of 2015: Economics and Personal Finance)	1
Elective	1
Career & Technical Education Specialization Course	3
<b>Total Credits</b>	<b>7</b>

### SAMPLE FOUR YEAR PLAN OF STUDIES FOR ADVANCED STUDIES DIPLOMA AND CAREER PREPARATION

GRADE 9	
COURSE	CREDIT
English 9	1
World History/Geography to 1500	1
Algebra I	1
Health/P.E. 9	1
Earth Science	1
World Language I	1
Career & Technical Education Elective	1
<b>Total Credits</b>	<b>7</b>
GRADE 10	
COURSE	CREDIT
English 10	1
World History/Geography 1500 to Present	1
Geometry	1
Health/P.E. 10	1
Biology	1
World Language II	1
Career & Technical Education Elective (or: Class of 2015 and beyond: Economics and Personal Finance)	1
<b>Total Credits</b>	<b>7</b>
GRADE 11	
COURSE	CREDIT
English 11	1
U.S. & Virginia History	1
Algebra II	1
Science	1
World Language III	1
Career & Technical Education Specialization Courses (or: Class of 2015 and beyond: Economics and Personal Finance + Elective)	2
<b>Total Credits</b>	<b>7</b>
GRADE 12	
COURSE	CREDIT
English 12	1
U.S. & Virginia Government	1
Advanced Functions and Modeling	1
Science	1
Career & Technical Education Specialization Courses (or: Class of 2015 and beyond: Economics and Personal Finance + 2 Electives)	3
<b>Total Credits</b>	<b>7</b>

### SAMPLE FOUR YEAR PLAN OF STUDIES FOR ADVANCED STUDIES DIPLOMA AND VERY COMPETITIVE COLLEGE

This sample plan depicts a very rigorous program of studies, beginning in the seventh grade. While it is extremely demanding, students and parents need to realize that many very competitive colleges actually accept students with fewer rigorous classes; however, strength of the curriculum is a major component in college admissions decisions.

Students should select a balance of classes that they can manage without undue stress. Colleges seek well-rounded students who have succeeded in school as well as in the community and with their peers.

Students should talk with a counselor, teachers, and parents for assistance in determining the best plan.

GRADE 9	
COURSE	CREDIT
English 9	1
World History/Geography to 1500	1
Algebra I (in grade 8)	1
Geometry	1
Health/P.E. 9	1
Earth Science	1
World Language I (in grade 7)	1
World Language II (in grade 8)	1
World Language III	1
Elective	1
<b>Total Credits</b>	<b>10</b>
GRADE 10	
COURSE	CREDIT
English 10	1
AP World History	1
Algebra II/Trigonometry	1
Health/P.E. 10	1
Biology	1
World Language IV	1
Elective (or: Class of 2015 and beyond: Economics and Personal Finance)	1
<b>Total Credits</b>	<b>7</b>
GRADE 11	
COURSE	CREDIT
English 11	1
AP U.S. History	1
Mathematical Analysis	1
Chemistry or Physics	1
World Language V	1
Fine Arts or Career & Technical Education	1
Elective (or: Class of 2015 and beyond: Economics and Personal Finance)	1
<b>Total Credits</b>	<b>7</b>
GRADE 12	
COURSE	CREDIT
English 12 AP	1
AP U.S. Government	1
AP Calculus—BC	1
Physics or AP Science or Ind. Science Research	1
AP World Language (beginning with class of 2013)	1
Electives (or: Class of 2015: Economics and Personal Finance + Elective)	2
<b>Total Credits</b>	<b>7</b>

**ART**

**Art I** **240000**  
 Grades 9-12 Credit: 1  
 Prerequisite: None

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 art criticism and aesthetic critiques. Class discussion includes both critiques of their own pieces and the work of other artists. Students maintain a portfolio to record the process.

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.

**Art II** **241000**  
 Grades 10-12 Credit: 1  
 Prerequisite: Art I

Students work with more advanced techniques, media, concepts, and ideas. Focus is on the connection between studio production and personal expression. 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. Units provide a balance of two- and three-dimensional experiences.

**Art III** **242000**  
 Grades 11-12 Credit: 1  
 Prerequisite: Art II

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.

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 art students should consult with their instructor about requirements for the Advanced Placement studio art portfolio.

**Art IV** **243000**  
 Grade 12 Credit: 1  
 Prerequisite: Art III

Art IV provides the advanced student with opportunities to initiate and design studio units of study. 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.

**Studio Art**  
**Advanced Placement,**  
*weighted 1.0 with AP portfolio per AP guidelines* **249100**  
 Grade 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-D design, or 3-D design. Also, students work with their art teacher to capture digital images of their artworks that adhere to the image submission requirements. Completing all requirements of the portfolio is necessary in order for students to receive the additional weighting and transcript designation as an AP class.

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

AP final grades are "weighted" by 1.0 if the student passes the course and elects to take the related AP examination.

**Art/Architecture I:**  
**Through the Renaissance** **247700**  
 Grades 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 which these societies produced.

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

**Art/Architecture II:**  
**Renaissance to Modern** **248700**  
 Grades 9-12 Credit: 0.5  
 Prerequisite: None

Students study art and architecture from the Renaissance through the twenty-first 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.

**Drawing and Painting**

Grades 10-12

Prerequisite: Art 1

**231700**

Credit: 0.5

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**

Grades 10-12

Prerequisite: Art I

**245700**

Credit: 0.5

The photography course is designed to serve as an introduction to black and white and digital photography. The class will be 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 good 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.

**Sculpture**

Grades 10-12

Prerequisite: Art I

**244700**

Credit: 0.5

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, which 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.

A minimum of Art I is required to assure that students possess background in basic design and composition.

## BUSINESS & INFORMATION TECHNOLOGY

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

**Industry Certifications:** The Business and Information Technology curriculum offers students the following industry certifications: MOS Word, MOS Excel, MOS PowerPoint, MOS Access, Certified Internet Webmaster (CIW), and Internet Computing Core (IC3).

**Introduction to Business & Marketing**

Grades: 9-11

Prerequisite: None

**821000**

Credit: 1

Students discover the roles of business and marketing in the free enterprise system and the global economy. Basic life skills in financial concepts of banking, insurance, credit, inheritance, taxation, and investments are investigated to provide a strong background as students prepare to make sound decisions as consumers, wage earners, and citizens. The real-world impact of technology, effective communication, and interpersonal skills is evident throughout the course. This course also supports career development skills and explores career options.

**Keyboarding**

Grades 9-12

Prerequisite: None

**826000**

Credit: 0.5

This 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 personal, educational, and professional documents. (Students who can demonstrate touch keyboarding skills may test out and enter into Advanced Keyboarding to develop document preparation skills.) This course is designed for students who have never taken a keyboarding class.

**Advanced Keyboarding**

Grades: 9-12

Prerequisite: Keyboarding or Keyboard Proficiency

**829700**

Credit: 0.5

This 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. The cooperative education method is available for this course.

**Computer Information Systems**

Grades 10-12

Prerequisite: Keyboarding or Keyboard Proficiency

**828001**

Credit: 1

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 can also become eligible to test for a core level of MOUS certification.

**Advanced Computer Information Systems** **828002**  
 Grades 11-12 **Credit: 1**  
 Prerequisite: Computer Information Systems

Advanced Computer Information Systems 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, Web site development, programming, networking, emerging technology, and employability skills.

**Desktop/Multimedia Presentations** **839001**  
 Grades 10-12 **Credit: 1**  
 Prerequisite: Keyboarding or Keyboard proficiency

Students develop proficiency in creating desktop publications, multimedia presentations/projects, and Web sites 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.

**Advanced Desktop/Multimedia Presentations** **839002**  
 Grades 11-12 **Credit: 1**  
 Prerequisite: Desktop/Multimedia Presentations, Using PowerPoint, or Web Page Design

This course provides a project base of instruction to enhance the desktop and multimedia skills of students.

Topics covered include designing, creating, and publishing websites; complying with laws and professional ethics; relating desktop/multimedia application to business and industry standards.

Students will be eligible to take a core test level of the Microsoft Office Specialist examination.

**Accounting** **830000**  
 Grades 10-12 **Credit: 1**  
 Prerequisite: None

Students acquire the basic principles, concepts, and practices of the accounting cycle. Students learn fundamental accounting procedures using both manual and electronic systems. Interpretation of accounting information is mastered through decision-making and problem-solving approaches that include source documents, case studies, and simulations. Course topics include forms of ownership, accounts receivable/accounts

payable systems, payroll, taxes, banking activities, business ethics, and financial statements.

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

Students 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.

**Leadership Development** **820700**  
 Grades 9-12 **Credit: 0.5 or 1—varies by school**  
 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.

**Cooperative Office Education** **834000**  
 Grades 11-12 **Credit: 1**  
 Prerequisite: Screening Conferences with Instructor

Cooperative Office Education (COE) provides a business student with an opportunity to experience on-the-job training in a variety of office skills while earning a salary. A student must apply for COE through the program coordinator. The student should be enrolled in an approved business program and be taking any one of the following courses: Office Administration, Word Processing, Accounting or Advanced Accounting, Computer Applications or Advanced Computer Applications.

A student may work a minimum of 270 hours in an approved clerical position. The student must have an early release from school and transportation to and from the job. Students are expected to stay employed throughout the school year in an approved office-related job.

**Business Law** **835700**  
 Grades: 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.

**Business Management****836700**

Grades: 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, cooperative education, and/or the Future Business Leaders of America (FBLA).

**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 Loudoun County Public Schools 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.

Students seeking Advanced Studies and Standard diplomas must earn a standard credit for English 11 and must pass both English 11 SOL tests to earn the two verified credits needed for graduation.

**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 compose both literary analysis essays and essays for other purposes, informational writing, and timed writing. They also 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 in all grades not only prepares students for PSAT, SAT, and SOL tests, it helps to develop students' reading comprehension and their ability to express themselves orally and in writing. Teachers focus on the use of context clues to understand unfamiliar words; distinctions between denotation and connotation; and a study of synonyms, antonyms, and homophones.

**Grade level courses** challenge students to master rigorous standards while providing individualized support. **Academic courses** focus on the same content and skills as grade level courses, but require more independent work. **Honors courses** are offered in grades 9, 10, and 11. While they focus on the same content and skills as grade level and academic courses, honors

courses are distinguished by a more rigorous study of literature. All year-long honors (H) 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.

Specific grade level distinctions are described below.

**English 9****140400****Academic****140300****Honors, weighted 0.5****140200**

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. Students produce documented *research* papers, using print, electronic databases, and on-line sources.

**English 10****150400****Academic****150300****Honors, weighted 0.5****150200**

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. Students are taught to collect, organize, and present information in a documented *research* paper.

**English 11****160400****Academic****160300****Honors, weighted 0.5****160200**

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 personal, professional, and informational correspondence. In addition to research papers, students produce multi-media research reports.

**ADVANCED PLACEMENT COURSES**

LCPS offers two AP courses for English, AP Literature and Composition and AP Language and Composition. Both AP courses provide instruction in oral language, reading and literature, writing and grammar, research, and vocabulary. In their oral language studies, students prepare and evaluate individual and group formal and informal presentations, with an emphasis on persuasive presentations. The reading and literature strand

includes the study of numerous literary works, including cultural archetypes and themes as well as critical perspectives; reading for pleasure, understanding, analysis, and evaluation; and application of rhetorical and literary terms.

Writing instruction in the AP courses encompasses timed responses to a variety of prompts and multi-paragraph essays with an emphasis on persuasive writing. Usage and mechanics instruction emphasizes independent editing. Students practice writing to prepare for college or careers. For the research component, students write at least one long documented paper. Vocabulary instruction emphasizes preparation for standardized tests, including the SAT, and vocabulary development through reading and writing.

**English Literature & Composition**

**Advanced Placement, weighted 1.0 with AP exam** **170100**  
Prerequisite: English 11 Credit: 1

Grade 12 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 will take the AP Literature and Composition Exam in May, with the possibility of earning college credit.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**English Language & Composition**

**Advanced Placement, weighted 1.0 with AP exam** **160100**  
Prerequisite: English 10 Credit: 1  
Co-requisite: English 11

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 and cultures. Varied and frequent composition assignments require close reading, rhetorical analysis, exposition of ideas, and the understanding of particular rhetorical forms and terms. Students will take the AP Language and Composition Exam in May, with the possibility of earning college credit.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**English 12** **170400**  
**Academic** **170300**  
Prerequisite: English 11 Credit: 1

This course is divided into two distinct semesters of study, one focusing on writing and the other on a study of world literature. Students build upon and extend the oral language, reading, writing, and research skills developed in the previous three grades.

**ENGLISH ELECTIVES**

**Creative Writing** **160700**  
Grades 11-12 Credit: 0.5  
Prerequisite: None

Creative Writing is a one-semester (0.5 credit) English elective. It 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**  
Grades 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 (0.5 credit) 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.

**Advanced Composition** **181700**  
Grades 11-12 Credit: 0.5  
Prerequisite: None

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

**Note:** Since many of the topics in Advanced Composition are covered in English 12, students who take Advanced Composition as an elective during their junior year have only AP choices for their senior year English credit: AP Literature and Composition or AP Language and Composition. Juniors who take Advanced Composition as an elective may NOT later count this class as an English credit while taking no English course during their senior year. This must be considered before signing up for this course.

**World Literature** **182700**  
Grades 11-12 Credit: 0.5  
Prerequisite: None

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 the semester course include oral and written analyses of readings, overviews of the society and history that relate to a particular selection, and evaluations of authors’ styles and themes.

**Note:** Since many of the topics in World Literature are covered in English 12, students who take World Literature as an elective during their junior year have only AP choices for their senior year English credit: AP Literature and Composition or AP Language and Composition. Juniors who take World Literature as an elective may NOT later count this class as an English credit while taking no English course during their senior year. This must be considered before signing up for this course.

**Etymology** **185700**  
 Grades 10-12 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.

**21<sup>st</sup> Century Literacy Strategies I** **192000**  
 Grades 9-12 Credit: 1 per year,

**21<sup>st</sup> Century Literacy Strategies I** **192700**  
 Grades 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 will support 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 will increase motivation by making reading relevant to students' lives.

**21<sup>st</sup> Century Literacy Strategies II** **193000**  
 Grades 10-12 Credit: 1 per year,

**21<sup>st</sup> Century Literacy Strategies II** **193700**  
 Grades 10-12 Credit: 0.5 per semester,  
 Students may take two semesters.  
 Prerequisite: 21<sup>st</sup> Century Literacy Strategies I

This course is a continuation of 21<sup>st</sup> Century Literacy Strategies I. Instruction will build 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.

**Theater Arts I** **250000**  
 Grades 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**  
 Grades 10-12 Credit: 1  
 Prerequisite: Drama I/Theater Arts I

More than a continuation of Drama I, Drama 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**  
 Grades 11-12 Credit: 1  
 Prerequisite: Drama II/Theater Arts II

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 12 Credit: 1  
 Prerequisite: Drama III/Theater Arts III

Designed for students with intense interest in theater arts at professional and/or collegiate levels, Drama IV students often work with Drama III students. Drama IV students will 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**  
 Grades 10-12 Credit: 1  
 Prerequisite: Theater Arts I

The course is an exploration of the duties of stage technicians and their contribution to the total aesthetic effect of a dramatic production. Topics covered will 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 will incorporate academic study and hands-on application of knowledge and skills.

**Technical Theater II** **255000**  
 Grades 11-12 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 will 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 have an additional unit of Design/Technical Portfolio in preparation for college admission requirements. Students who retake Technical Theater II for credit will specialize in an area of study and revise their design/technical portfolio to reflect their growing expertise in their specialization.

**Journalism** **187000**  
 Grades 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**  
 Grades 10-12 Credit: 1  
 Prerequisite: Journalism and/or Instructor's Approval

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**  
 Grades 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 online publication, polls and statistics, and newspaper evaluation.

Students use publication software to produce the school newspaper.

**Newspaper Journalism III** **188003**  
 Grades: 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 online services, press law, photo management, and video interviewing.

Students use publication software to produce the school newspaper.

**Photojournalism I** **189001**  
 Grades 10-12 Credit: 1  
 Prerequisite: Journalism and/or Instructor's Approval

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**  
 Grades 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: 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**  
 Grades 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, and promotes the application of oral communication skills to other academic disciplines and to life experiences.

## ENGLISH LANGUAGE LEARNERS

Special programs of instruction are available for students who are English Language Learners (ELL). ELL classes are offered in all high schools except where a school has too few students. In schools with very small enrollments, students are transported to nearby schools with larger student enrollments so that they can participate in the ELL program.

When students enroll in Loudoun County, they are asked if English is the language spoken at home. If it is not, an English language proficiency test will be administered by trained instructors. The test will help determine the classes appropriate for the student.

Each student's placement will be determined on an individualized basis. Students will be placed at the appropriate level in the classes below. Once academic English skills are acquired, the student will proceed to other classes listed in the Program of Studies.

ELL students must meet all graduation requirements in order to earn a diploma. In some cases, high school age students who arrive with little or no English skills may need more than four years to complete the credits and testing needed for graduation from high school. The Gateway Program is available to serve these students once they have reached their eighteenth birthdays or the semester in which they will turn eighteen.

### ENGLISH PROGRESSION

- |   |                       |
|---|-----------------------|
| 1. English as a World Language I (EWL I)<br>(World language credit; <b>not</b> an English credit)     | <b>394010</b>         |
| 2. English as a World Language II (EWL II)<br>(World language credit; <b>not</b> an English credit)   | <b>395010</b>         |
| 3. ELL Writing in Content Areas<br>(Elective credit; may be taken concurrently with EWL)              | <b>145010</b>         |
| 4. ELL Advanced Writing in the Content Areas<br>(Elective credit; may be taken concurrently with EWL) | <b>190015</b>         |
| 5. Advanced Language Learners<br>(English credit toward graduation requirement)                       | <b>197010</b>         |
| 6. English 9 (General)*   | <b>140400</b>         |
| 7. English 10 or English 12 (General)*  | <b>150400; 170400</b> |
| 8. English 11 (General)*  | <b>160400</b>         |

\* Academic and Honors English also available

### WORLD LANGUAGE CREDIT

EWL I (**394010**) and EWL II (**395010**) both count as world language credits. Native and heritage Spanish speakers may also enroll in the Spanish for Fluent Speakers course series for world language credit. A placement test is required for SFS (**367000**).

### MATH PROGRESSION

- |  |               |
|--|---------------|
| 1. ELL Math (elective; <b>not</b> a math credit) | <b>588010</b> |
| 2. All other math courses                        |               |

### READING PROGRESSION

- |                    |               |
|--------------------|---------------|
| 1. ELL Reading I   | <b>190011</b> |
| 2. ELL Reading II  | <b>190012</b> |
| 3. ELL Reading III | <b>190013</b> |

### SCIENCE PROGRESSION

- |   |               |
|---|---------------|
| 1. ELL Science Concepts I ( <b>not</b> a science credit)              | <b>650310</b> |
| 2. ELL Science Concepts II<br>(Elective; <b>not</b> a science credit) | <b>650410</b> |
| 3. Earth Science  | <b>640300</b> |
| 4. All other science courses  |               |

### SOCIAL SCIENCE PROGRESSION

- |  |               |
|--|---------------|
| 1. ELL Social Science Concepts I<br>(Elective credit; <b>not</b> a social science credit)  | <b>770010</b> |
| 2. ELL Social Science Concepts II<br>(Elective credit; <b>not</b> a social science credit) | <b>770011</b> |
| 3. World History/Geography I or  | <b>740300</b> |
| 4. World History/Geography II  | <b>745300</b> |
| 5. U.S. and Virginia History   | <b>750300</b> |
| 6. U.S. Government   | <b>760300</b> |

### English as a World Language I (EWL I)

**394010**

Grades 9-12

World Language Credit: 1

In this course, beginner ELL students (codes 15-16) learn basic academic, cultural, and life skills, English vocabulary, grammar, and sentence structures. By the time they finish this class, students should be able to function at school and in the community.

### English as a World Language II (EWL II)

**395010**

Grades 9-12

World Language Credit: 1

In this course, intermediate ELL students (codes 16-17) continue to expand the communication skills they started in EWL I so that they can express more complex ideas and state their own opinions orally and in writing. By connecting with others, students demonstrate that they have progressed through basic needs language and are ready for some independent opportunities to study topics of interest to them.

### Advanced English Language Learners (ADV ELL)

**197010**

Grades 9-12

English Credit: 1

In this course for intermediate to advanced ELL students (codes 17-19), the world becomes the classroom as students frequently use research and technology to tie their learning to their own experiences, to the local community, to American culture, and to a sense of being part of a global community. By the time they finish this class, students should have acquired maturing language skills that will help them succeed in many different academic and social situations that are experienced in high school and beyond. Advanced ELL is the first course in the series for which students receive an English credit, and as such holds students to more rigorous standards than their prior ELL coursework.

### ELL Reading I

**190011**

Grades 9-12

Elective Credit: 1

In this course, beginning level ELL students (codes 15-16) often start with few written English skills. The students improve their basic English language reading skills through studying how letters' sounds, combinations, and meanings make words; by learning to listen for the way sounds are spoken and read from their letters; and by connecting beginning vocabulary for everyday needs. Students read short passages, folk tales, and

poems from cultures around the world and think about various ways to make what they read stay in their minds longer.

**ELL Reading II** **190012**  
 Grades 9-12 Elective Credit: 1

In this course, intermediate ELL students (codes 16-17) progress to become more independent readers as they move beyond simple passages and skills. Reading to connect with others and what the student has already learned from life is an important part of this course. Vocabulary study moves students toward more mature language power. Readings from around the world and various forms of short novels—including graphic novels—may be chosen for class study by teachers.

**ELL Reading III** **190013**  
 Grades 9-12 Elective Credit: 1

In this course, advanced ELL students (codes 17-19) show their growth and confidence by selecting more of their own readings, working with their teachers to monitor their own progress, and evaluating their use of their favorite reading strategies. Reading to connect with other cultures, communities, and individuals continues as an important part of this course so that the wonderful diversity of human beings' talents and contributions can be explored and celebrated.

**ELL Mathematics** **588010**  
 Grades 9-12 Elective Credit: 1  
(not a math credit)

In this course, beginning and intermediate ELL students (codes 15-17) study both the language of mathematics and problem-solving skills to prepare them for courses available in the Math Department, such as Algebra I, Geometry, and Algebra II. If a student needs support for these courses, ELL Math helps prepare them. This course may be repeated if students are not ready for the Mathematics Department sequence.

**ELL Science Concepts I** **650310**  
 Grades 9-12 Elective Credit: 1  
(not a science credit)

This course is designed for beginner to intermediate ELL students (codes 15-17) who need to learn high school science laboratory skills and vocabulary. Areas of science studied include general science theory, earth science, biology, and physical science. This course is required for beginning students before they take ELL Advanced Science Concepts.

**ELL Science Concepts II** **650410**  
 Grades 9-12 Elective Credit: 1  
(not a science credit)

Prerequisite: ELL Science Concepts I **or** ELL students (codes 17-19) whose transcripts show they have taken Earth Science, Biology, and Chemistry (in the students' first languages.)

This course is for intermediate to advanced ELL students (codes 17-19) who have completed the introductory ELL Science Concepts I course. Advanced Science Concepts focuses on the vocabulary required for success in Earth Science, Biology, and

other sciences students may choose to take later. Students read real scientific materials, do experiments, and write lab reports. The vocabulary and scientific content of the course is based on the Virginia Standards of Learning for Earth Science and Biology.

**ELL Social Science Concepts I** **770010**  
 Grades 9-12 Elective Credit: 1  
(not a social science credit)

This course is designed for beginning to intermediate ELL students (codes 15-17) who need to learn social science skills, such as map reading and researching, in the English language. The subject and vocabulary content of this course are based on the SOLs for World Geography, World History, and U.S. Government, and Economics. Concepts I World History topics cover the Origins of Man and Early Civilizations through The Renaissance and World Religions.

**ELL Social Science Concepts II** **770011**  
 Grades 9-12 Elective Credit: 1  
(not a social science credit)

This course is designed for intermediate to advanced ELL students (codes 17-19) who need to learn social science skills, such as reading graphs and tables and analyzing political cartoons, in the English language. Concepts II also helps ELL students prepare for SOL tests they will take in their later Social Studies Department courses. The subject and vocabulary content of this course are based on the SOLs for World History and U.S. and Virginia History. Concepts II World History topics cover the Reformation through current events.

**ELL Writing in Content Areas** **145010**  
 Grades 9-12 Elective Credit: 1

This course is for intermediate to advanced ELL students (codes 16-17) who would like to learn ways to become better writers. Students practice writing skills that will help them discover how to compose sentences and use words in different ways to lead their readers to understand their ideas easily. Writing assignments are designed to support students' growth as writers in core subject and elective study areas (English, Math, Science, Social Science, the Arts, Health, etc.)

**ELL Advanced Writing in Content Areas** **190015**  
 Grades 9-12 Elective Credit: 1

This course is designed for intermediate to advanced ELL students (codes 17-19). The focus of the course is enhancing literacy in English with particular emphasis on refining strategies used by successful writers. The writing skills that students develop will help them mature in understanding and correct use of English word structures, syntax, idioms, and content vocabulary for SOL classes. Writing confidently for a variety of purposes and audiences is the foundation of this course. Student writing assignments are designed to support SOL and content area writing standards in academic subjects.

## ELL GATEWAY

*Gateway is a two-year program based upon research done in the way people learn multiple languages and in experience teaching young adult language learners. English Language Learning is seen as a long-term process in which students' growth in proficiency moves at different rates. Students' ability to pass standardized tests, such as the Pre-GED, is important, but the larger purpose of this program is successful integration into American society on a mature level: the ability to communicate with co-workers on the job; the ability to continue an education in college; or, simply the ability to give and receive accurate information from a community service. The main goals are to give older ELL students (ages 18-20) the skills needed for life outside high school and the academic skills needed to enter an official GED class' five major topics: reading, writing, math, science, and social studies.*

### Gateway-ELL Developmental Reading

**(GW ELL Reading I)**

**GW-190111**

**(GW ELL Reading II)**

**GW-190112**

**(GW ELL Reading III)**

**GW-190113**

Grades 9-12; Ages 18-20

Elective Credit: 1

Gateway Reading offers instruction in essential reading strategies for comprehension and vocabulary development that will serve students throughout the rest of their lives. Students read from a variety of sources, occasionally select material themselves, and work with their teachers to develop goals that will make learning meaningful for them. A variety of real-life applications are explored. Students are generally assigned by proficiency level.

### Gateway-ELL Writing in Content Areas

**GW-145110**

Grades 9-12; Ages 18-20

Elective Credit: 1

Gateway Writing shows students how to improve their writing through teacher-led examples and practice in many different types of practical assignments and on-the-job writing tasks. Students work on real-world assignments as they work toward improving their use of Standard American English.

### Gateway-ELL Advanced Writing in Content Areas **GW-190115**

Grades 9-12; Ages 18-20

Elective Credit: 1

This course is for intermediate to advanced ELL students who would like to learn ways to become better writers. Students practice writing skills that will help them to improve their written communication skills and use of standard written English in order for others to understand their ideas easily. Writing assignments are designed to support students' growth in real life applications.

### Gateway-Fast Math

**GW-588110**

Grades 9-12; Ages 18-20

Elective Credit: 1

Gateway Fast Mathematics helps students improve their use of every day, practical math skills and the reading and writing skills used to solve math problems. Students' assignments give them the opportunity to act as consumers and as if they are at work.

### Gateway-ELL Social Science Concepts I

**GW-770110**

Grades 9-12; Ages 18-20

Elective Credit:1

(not a social science credit)

Gateway Social Science I focuses on essential social science skills, such as map reading and research, as well as thinking and discussion methods to help students get the most out of what they read in their textbooks. Students explore a variety of topics in U.S. and World History that have real-world connections.

### Gateway-ELL Social Science Concepts II

**GW-770111**

Grades 9-12; Ages 18-20

Elective Credit:1

(not a social science credit)

Gateway Social Science II is a continuation of first year Gateway Social Science and reinforces essential social science skills, such as reading graphs and tables and research. Reading and discussion continue to be an important part of making history come alive for students and become part of their lives.

### Gateway-ELL Science Concepts I

**GW-685110**

Grades 9-12; Ages 18-20

Elective Credit:1

(not a science credit)

Gateway Science Concepts is a course in the basics of the scientific method, relating it to real-world connections, and to practical applications of science in everyday life. Students work on a variety of problems that can be solved by using science knowledge and skills and often choose the type of projects they would like to complete.

### Gateway-ELL Science Concepts II

**GW-685210**

Grades 9-12; Ages 18-20

Elective Credit:1

(not a science credit)

Gateway Advanced Science Concepts is a continuation of the level 1 course and offers students more chances for learning based on their experiences and observations. Instruction in the scientific method continues, along with an emphasis on real-world connections and the practical applications of science in everyday life. Students engage in a variety of problem-solving tasks and often choose their projects.

## FAMILY & CONSUMER SCIENCES

**Choices**

Grades 9-10  
Prerequisite: None

**841700**  
Credit: 0.5

Teenagers are often faced with making tough decisions that can have lifetime effects. Through the application of critical thinking skills, reasoning skills, and problem solving abilities, students develop the skills to make decisions and accept and handle the responsibilities of those decisions.

Choices investigates timely issues such as group and family dynamics, establishing friendships, positive peer pressures, conflict resolution, dating relationships, human reproduction, stress and time management as well as dealing with the pressures of grades, working and going to school, drugs and alcohol, body perceptions and eating disorders, and negative peer pressure.

**Early Childhood Education I**

Grades 10-12  
Prerequisite: None

**844001**  
Credit: 1

Recommended: Human Development or  
Introduction to Business & Marketing.  
*BWHS, FHS, BRHS, DHS, HHS, PVHS, PFHS, SBHS, & WHS only*

This program focuses on the integration of knowledge, skills, and practices required for careers in early childhood education. Content covers career paths within early childhood, education, and services; developmentally-appropriate practices; integration of the curriculum and instruction to meet children’s developmental needs and interests; healthy and safe learning environments; principles of guiding children; teaching methods and strategies; and arranging learning centers that provide for exploration, discovery and development.

Students gain practical experience in the early childhood facility at their high school, an elementary school, or a community childcare facility. Tuberculosis testing is required for this class.

**Early Childhood Education II**

Grades 11-12  
Prerequisite: Early Childhood Education I

**845002**  
Credit: 1

*BWHS, FHS, BRHS, DHS, HHS, PVHS, PFHS, SBHS, & WHS Only*

This course delves into program operations in early childhood and care. Students explore various jobs within the industry and gain work experience at various childcare facilities.

Upon completion of the program, students may obtain the Child Development Association National Credential through the Council for Professional Recognition, Child Development Association by taking a written exam at the age of 18 or above, meeting the hour requirements for work experience, and being observed at the work site. Tuberculosis testing is required for this class.

**Fashion Design & Merchandising**

Grades 9-12  
Prerequisite: None

**846700**  
Credit: 0.5

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 will construct various fashion projects for which students must provide materials.

**Gourmet Foods**

Grades 9-12  
Prerequisite: None

**845700**  
Credit: 0.5

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 food pyramid 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.

**Human Development**

Grades 9-12  
Prerequisite: None

**846000**  
Credit: 0.5

In Human Development, students study and analyze principles and theories of human growth and development from conception to age six.

The interrelationships among physical, emotional, social, and intellectual development are explored, and conditions that influence human growth and development are examined.

**Independent Living**

Grades 9-12  
Prerequisite: None

**840700**  
Credit: 0.5

Whether students choose to enter the work force or to 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.

**Introduction to Housing & Interior Design** **847700**  
 Grades 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 will 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.

**Leadership Development** **820700**  
 Grades 9-12 Credit: 0.5 or 1—varies by school  
 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.

**Marriage and Family Dynamics** **842700**  
 Grades 11-12 Credit: 0.5  
 Prerequisite: None

Creating and sustaining a lasting marriage begins with the study of self and relationships with others. The institution of marriage will be examined and include topics such as mate selection, commitment, communication, role expectations, financial stability, careers, and parenthood. The curriculum also addresses family dynamics, balancing work and family life, building strong family units and solving personal and family problems.

**Teacher Cadet Program, weighted 0.5** **844002**  
 Grade 12 Credit: 1  
 Prerequisite: 3.0 GPA, three teacher recommendations, a student essay, and an application process

The Teacher Cadet Program is designed to attract talented high school students into the teaching profession through a challenging introduction to teaching.

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 will participate in field experiences in Loudoun County Public Schools' grades K-12. Students will work with classroom teachers at their chosen grade level of interest. Tuberculosis testing is required for Cadet students.



## HEALTH & PHYSICAL EDUCATION

**Health and Physical Education 9** **440000**  
 Grade 9 Credit: 1  
 Prerequisite: None

Students are offered a variety of challenging activities with an emphasis on fitness for life. In high school, health and physical education classes are offered 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 ninth grade health curriculum includes topics such as personal fitness and nutrition; stress and mental health; risk behaviors; consumer health and health agencies; global health issues; CPR/AED/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**  
 Grade 10 Credit: 1  
 Prerequisite: Health & PE 9

Students are offered a variety of challenging activities with an emphasis on fitness for life. In high school, health and physical education classes are offered every other day. Students begin to develop personal choices for preferred activities that include 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 tenth grade health curriculum includes topics such as alcohol, tobacco, and other drugs; organ donation, nutrition and wellness planning; risk behaviors; 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 10 Credit: 0  
 Prerequisite: Health & PE 9

This course consists of 36 hours of classroom instruction and is required prior to taking behind-the-wheel training. 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, Modules 1-10. 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).

**Advanced Physical Education I** **460000**  
 Grades 11-12 Credit: 1

**Advanced Physical Education I** **460700**  
 Grades 11-12 Credit: 0.5  
 Prerequisite: Health & 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 will 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**  
 Grades 11-12 Credit: 1

**Advanced Physical Education II** **465700**  
 Grades 11-12 Credit: 0.5  
 Prerequisite: Health & 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.

## WORLD LANGUAGES & CULTURES

**Notice of program changes in World Languages:** LCPS has phased in a sixth year of world language study in French, German, Latin, and Spanish. This sequence of courses leads to the AP course in the sixth year of language study. All language programs will emphasize instruction in the target language.

**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**  
 Grades 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 (ASL)** **382000**  
 Grades 10-12 Credit: 1  
 Prerequisite: American Sign Language 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 (ASL)** **383000**  
 Grades 11-12 Credit: 1  
 Prerequisite: American Sign Language 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.

**French I** **340000**  
 Grades 7-12 Credit: 1  
 Prerequisite: None

Students experience an introduction to the French language and to the culture of the French-speaking world.

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 French-speaking world and its culture.

**French II** **342000**  
 Grades 8-12 Credit: 1  
 Prerequisite: French I

This second level course continues the emphasis on the communication skills of reading, writing, listening, and speaking. Written work emphasizes vocabulary development, semantics, syntax, and composition with special attention to use of primary verb tenses.

Vocabulary is taught in context, practiced through audio-lingual usage, and reinforced with written exercises. Since the speech of people is so interwoven with their way of life, the student examines the customs and manners of the people.

**French III** **343000**  
 Grades 9-12 Credit: 1  
 Prerequisite: French II

Students increase efficiency in all phases of language study. The class provides an ongoing review of basic structures taught in the first two years. Reinforcement of the communicative skills may be encouraged through conversation, exposition, and selected readings that reflect the customs, character, and traditions of the French.

Written work involves composition, vocabulary development, and grammatical skills with special emphasis on verb tenses.

**French IV—Honors, weighted 0.5** **344000**  
 Grades 10-12 Credit: 1  
 Prerequisite: French III

Students continue the expansion of skills in French. The study of novels, short stories, plays, and other genres gives the student an opportunity to gain a deeper insight into the nature and structure of the language.

A French IV/V combined class may incorporate reading selections from the Advanced Placement Program.

**French V—Honors, weighted 0.5** **345000**  
 Grades 10-12 Credit: 1  
 Prerequisite: French IV—Honors

This course is designed to provide students with a deep review and expansion of previously learned themes and structures by encapsulating them in authentic, real-life activities. Students will listen to and interpret from a variety of audio sources and perform communicative activities to demonstrate comprehension. Students will engage in interpersonal activities to enhance listening and presentational speaking skills. Writing will be enriched via new thematic contexts introduced through a variety of French literary genre. The curriculum weaves the research of the various Francophone cultures, allowing students to tie their findings to other disciplines. The 2011-2012 College Board Advanced Placement Grading Rubric will be used for evaluating all presentational assignments in this class.

**French**  
**Advanced Placement, weighted 1.0 with AP exam** **345100**  
 Grades 10-12 Credit: 1  
 Prerequisite: French V—Honors

Students develop proficiency by emphasizing use of the language for active communication rather than focusing on mastery of any specific body of subject matter.

Extensive listening practice, oral presentations, expository writing, reading and discussion of varied genres, and a detailed grammar review enable students to hone their skills.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**German I** **370000**  
 Grades 7-12 Credit: 1  
 Prerequisite: None

Students develop basic communication skills in the four areas of language learning: listening, speaking, reading, and writing. Vocabulary is taught in context. Focus is on learning the grammatical structures of the spoken and written language.

The daily life and geography of the German speaking countries are an integral part of this course. Through the use of varied media, students are exposed to a variety of native speakers.

**German II** **372000**  
 Grades 8-12 Credit: 1  
 Prerequisite: German I

Basic concepts introduced in Level I are reviewed and expanded. Students are encouraged to communicate in a variety of practical situations. The reading selections further develop an appreciation of German culture. Through the use of varied media, students are exposed to a variety of native speakers.

**German III** **373000**  
 Grades 9-12 Credit: 1  
 Prerequisite: German II

The emphasis is on comprehension and communication skills in German III. German culture is integrated into a program of study based on the four areas of language acquisition.

Through reading selections, students review and reinforce grammar and vocabulary. Classroom assignments include guided and creative writing as well as formal and informal discussions.

**German IV—Honors, weighted 0.5** **374000**  
 Grades 10-12 Credit: 1  
 Prerequisite: German III

German IV will focus on communication and comprehension in written and spoken German.

Grammar skills introduced in levels 1–3 will be reviewed, refined and reinforced. Students will read a variety of cultural and literary texts.

Classroom assignments will include guided and creative writing as well as formal and informal discussions.

**German V—Honors, weighted 0.5** **375000**  
 Grades 10-12 Credit: 1  
 Prerequisite: German IV—Honors

This course is designed to provide students with a review and expansion of previously learned themes and grammatical concepts covered in Levels I-IV by encapsulating them in authentic, real-life activities. The German V curriculum will also include the research of German culture in various German-speaking countries, allowing students to make presentations regarding their findings and to connect them with other areas of study, such as history, art, science, music, and etymology. The 2011-2012 College Board Advanced Placement Grading Rubric will be used for evaluating all presentational assignments in this class.

**German**  
**Advanced Placement, weighted 1.0 with AP exam** **375100**  
 Grades 10-12 Credit: 1  
 Prerequisite: German V—Honors

Students will refine language skills introduced in the first four years of study. The course will emphasize activities and structures necessary for effective speaking, writing, listening, and reading.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**Latin I** **350000**  
 Grades 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**  
 Grades 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**  
 Grades 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, weighted 0.5** **354000**  
 Grades 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, English derivatives, and grammar relevant to the literary text.

**Latin V—Honors, weighted 0.5** **355000**  
 Grades 10-12 Credit: 1  
 Prerequisite: Latin IV—Honors

This course pairs a review of Latin grammar and vocabulary with the reading of selected passages from various Roman authors. It provides students with the skills necessary to translate the selected text, read aloud Latin verse in meter, analyze stylistic technique, and interpret the author's intent through word choice, syntax, and mythological 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**  
**Advanced Placement, weighted 1.0 with AP exam** **359100**  
 Grades 10-12 Credit: 1  
 Prerequisite: Latin V—Honors

In the Advanced Placement Latin course students gain an appreciation for the epic poetry of Vergil's *Aeneid*. This course provides students with the necessary skills to translate the selected text, read aloud Latin verse in meter, analyze stylistic

technique, and interpret the author's intent through word choice, syntax, and mythological allusions. An exploration of the pertinent history and mythology is also incorporated into this class. Students continue to broaden vocabulary.

AP final grades are "weighted" by 1.0 if the student passes the course and elects to take the related AP examination.

**Mandarin Chinese I** **321000**  
 Grades 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 will be introduced systematically as they are related to the listening/speaking activities conducted.

**Mandarin Chinese II** **331000**  
 Grades 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. Use of the Chinese characters will be reviewed and expanded systematically—as they are related to the listening/speaking activities conducted.

**Mandarin Chinese III** **334000**  
 Grades 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**  
 Grades 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 will focus on the acquisition of comparable competencies in reading and writing.

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

**Spanish for Fluent Speakers II** **367300**  
 Grades 7-12 Credit: 1  
 Prerequisite: Spanish for Fluent Speakers I/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. Through the reading and discussion of selections written by classic and modern authors in a variety of genres, comprehension and communication skills are refined.

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

**Spanish for Fluent Speakers III—Honors, weighted 0.5** **367500**  
 Grades 9-12 Credit: 1  
 Prerequisite: Spanish for Fluent Speakers II/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 Hispanics in the U.S.A., their history, culture and contributions. This course prepares students to enroll in Advanced Placement Spanish Language.

Upon successful completion of the course, the student may continue in the traditional world language Spanish sequence at Spanish V or AP Spanish.

**Spanish I** **360000**  
 Grades 7-12 Credit: 1  
 Prerequisite: None

Students communicate in Spanish through the sequential development of listening, speaking, reading, and writing skills. A natural approach to language learning through oral, interpersonal communication is emphasized. A foundation in grammatical principles, structures, and writing skills is built simultaneously. In addition, the student also gains information about culture in the Spanish-speaking world.

**Spanish II** **362000**  
 Grades 8-12 Credit: 1  
 Prerequisite: Spanish I

Students review, strengthen, and amplify the basic principles of Level I. The course, which places a continued emphasis on the four skills, is designed to facilitate the use of Spanish in the classroom. Daily life and familiarization with contemporary personalities form the basis for this year's cultural study.

**Spanish III** **363000**  
 Grades 9-12 Credit: 1  
 Prerequisite: Spanish II

Students increase proficiency in listening, speaking, reading, and writing. The course provides review and amplification of structures previously taught and introduction to more advanced grammatical concepts. Hispanic art, history, geography, and literature are studied. Classes are conducted in Spanish, and all oral and written work is done in the target language.

**Spanish IV—Honors, weighted 0.5** **364000**  
 Grades 10-12 Credit: 1  
 Prerequisite: Spanish III

Students polish the four basic language skills. Major grammar points are reviewed and finer points of grammar are studied, placing emphasis on style and structural accuracy. Vocabulary is expanded through the study of idioms, cognates, synonyms, antonyms, classified topics, and words easily confused.

Through the reading and discussion of selections written by classic and modern authors in a variety of genres, comprehension and communication skills are refined. Cultural and historical topics relevant to Spain are studied.

**Spanish V—Honors, weighted 0.5** **365000**  
 Grades 10-12 Credit: 1  
 Prerequisite: Spanish IV—Honors, or  
 Spanish for Fluent Speakers III—Honors

In this course, students take a tour of the Spanish-speaking world, immersing themselves in its language, history, culture, and arts. Spanish V begins in Spain and takes students through the Americas from North to South. In each region, students explore geography, history, politics, current events and literature. Through the use of current media and authentic materials, they develop their listening, speaking, reading and writing skills. They expand their language skills through advanced content-related vocabulary and structures based on global issues. Students begin preparation for the AP Spanish Language and Culture course. The 2011–2012 College Board Advanced Placement Grading Rubric is used for evaluating all presentational assignments in this class.

**Spanish**  
**Advanced Placement, weighted 1.0 with AP exam** **365100**  
 Grades 10-12 Credit: 1  
 Prerequisite: Spanish V—Honors or  
 Spanish for Fluent Speakers III—Honors

Students will build upon the language proficiency skills developed in the first five years of study. This course will emphasize the use of language for active communication, listening practice, reading and discussion of varied genres and expository writing. The 2011–2012 College Board Advanced Placement Grading Rubric is used for evaluating all presentational assignments.

AP final grades are "weighted" by 1.0 if the student passes the course and elects to take the related AP examination.

## MARKETING

All Marketing Education students may join DECA, an association of Marketing students, which promotes leadership development, civic consciousness, social intelligence, and vocational understanding.

DECA is organized on local, state, and national levels to provide incentives and recognition through activities, competitions, and even scholarship opportunities.

DECA is co-curricular and is an integral part of each Marketing Education course.

**Introduction to Business & Marketing** **821000**  
 Grades 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 and 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.

**Marketing Co-Op** **822000**  
 Grades 11-12 Credits: 2  
**Marketing Non-Co-Op** **822100**  
 Grades 11-12 Credit: 1  
 Prerequisite: Screening Conference with Instructor, Introduction to Business and Marketing (recommended)

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.

**Advanced Marketing Co-Op** **823000**  
 Grade 12 Credits: 2  
**Advanced Marketing Non-Co-Op** **823100**  
 Grade 12 Credit: 1  
 Prerequisite: Marketing 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.

**Sports, Entertainment, & Recreation Marketing** **821100**  
 Grades 10-12 Credit: 1  
 Prerequisite: Introduction to Business & Marketing Recommended

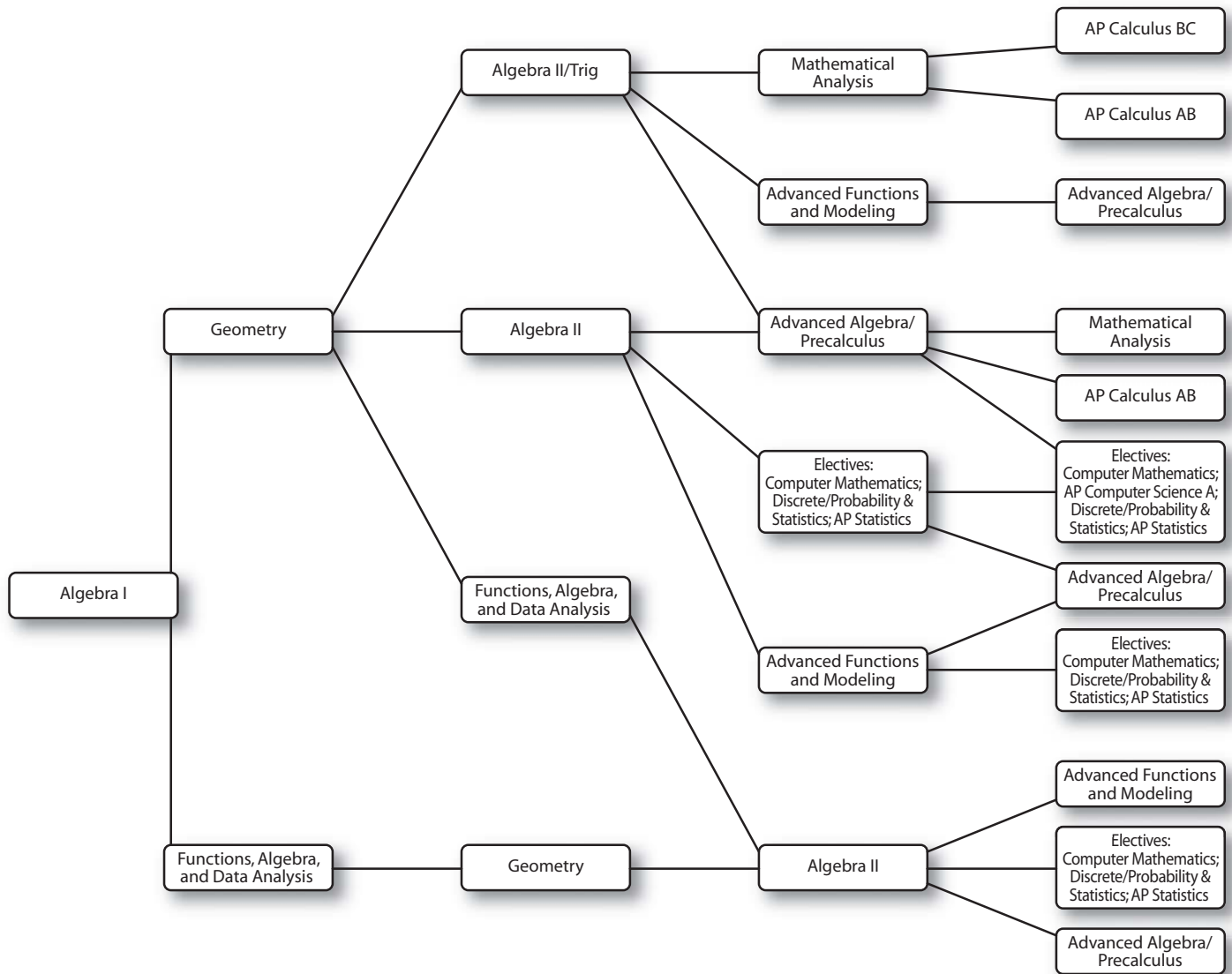
Sports, Entertainment, and Recreation Marketing is a course designed for students with an interest in the sports, entertainment, and recreation industry.

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.

**Leadership Development** **820700**  
 Grades 9-12 Credit: 0.5 or 1—varies by school  
 Prerequisite: None

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

MATHEMATICS PROGRESSION CHART



MATHEMATICS

**Algebra I, Part 1\*** **542000**  
 Grades: 9-12 Credit: 1\*  
 Prerequisite: Mathematics 8

Algebra I, Part 1 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 Modified Standard Diploma by successfully completing Algebra I, Part 1.

**Algebra I, Part 2\*** **543000**  
 Grades: 9-12 Credit: 1\* (If completed in conjunction with Algebra I, Part 1)

Prerequisite: Algebra I, Part 1

**SQL 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 a school counselor about the credits that may be used to fulfill the mathematics requirements for a high school diploma.

**\*For students entering the 9th grade for the first time in 2009-2010 or after, these courses may only be used as mathematics credits to fulfill the requirements of a Modified Standard Diploma.**

**Algebra I**

Grades: 9-12

Prerequisite: Mathematics 8

**540000**

Credit: 1

**SOI TEST** Algebra I incorporates all of the 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 critical thinking skills. Computers are used as tools to enhance the problem solving process and provide students with visual models that augment the learning of algebraic concepts. Graphing calculators are utilized to enhance the understanding of functions and provide a powerful tool for solving and verifying solutions to equations and inequalities. Emerging technologies are incorporated into the curriculum as they become available.

**Geometry**

Grades: 9-12

Prerequisite: Algebra I

**550000**

Credit: 1

**SOI TEST** Geometry is the unified study of plane, solid, and coordinate geometric concepts which provides students with the skills requisite 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. Opportunities for inquiry-based learning through hands-on activities and experiences that allow for utilizing computer software to explore major concepts and develop critical thinking skills are provided. An emphasis on reasoning, critical thinking, and proof permeates the course and includes two-column proofs, paragraph proofs, and coordinate proofs. Graphing calculators are utilized to enhance the understanding of functions and provide a powerful tool for solving and verifying solutions to equations and inequalities. Emerging technologies are incorporated into the curriculum as they become available. Mathematical communication, reasoning, are emphasized throughout the course.

**Functions, Algebra, and Data Analysis**

Grades: 9-12

Prerequisite: Algebra I

**565000**

Credit: 1

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 will 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**

Grades: 9-12

Prerequisite: Algebra I and Geometry

**560000**

Credit: 1

**SOI TEST** Algebra II provides a thorough treatment of advanced algebraic concepts through the 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. 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, weighted 0.5**

Grades: 9-12

Prerequisite: Algebra I and Geometry

**571000**

Credit: 1

**SOI TEST** Algebra II/Trigonometry provides a thorough treatment of advanced algebraic concepts through the 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**

Grades: 10-12

Prerequisite: Algebra II

**597700**

Credit: 0.5

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 models the means by which data are collected, used, and analyzed. This course enables students to be wise users of statistical methods and more critical consumers of statistical materials. The use of computers and calculators should enhance the learning process and provide students with experiences working with emerging technologies.

**Discrete Mathematics** **599700**  
 Grades: 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. Discrete Mathematics 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. Emerging technologies are incorporated into the curriculum as they become available.

**Advanced Functions and Modeling** **572000**  
 Grades: 10-12 Credit: 1  
 Prerequisite: Algebra II

Advanced Functions and Modeling provides opportunities for students to deepen understanding and knowledge of functions-based mathematics. 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 along with the precepts of transformational graphing 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**  
 Grades: 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. Emerging technologies are incorporated into the curriculum as they become available.

**Mathematical Analysis, weighted 0.5** **586000**  
 Grades: 10-12 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 of the concepts presented to other disciplines. Students routinely use graphing calculators as tools for exploratory activities and for solving rich application problems. Emerging technologies are incorporated into the curriculum as they become available.

**Computer Mathematics** **593000**  
 Grades: 10-12 Credit: 1  
 Co-requisite: Algebra II

Computer Mathematics provides students with experiences in workplace computer applications, personal finance, essential algebra skills necessary for college mathematics, and computer programming techniques and skills. Students solve problems that can be set up as mathematical models. Students develop and refine skills in logic, organization, and precise expression, thereby enhancing learning in other disciplines. Programming should be 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. For students entering the 9th grade for the first time in 2010-2011 or after, Computer Mathematics may not count as one of the four mathematics courses required for an Advanced Studies diploma.

**Computer Science A**  
**Advanced Placement, weighted 1.0 with AP exam** **595100**  
 Grades: 11-12 Credit: 1  
 Prerequisite: Computer Mathematics

Advanced Placement Computer Science A is taught according to the syllabus for Computer Science A available through the College Entrance Examination Board. Major topics in AP Computer Science A 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. College credit and/or advanced placement in college is available to those students receiving a qualifying score on the Advanced Placement Examination.

AP final grades are "weighted" by 1.0 if the student passes the course and elects to take the related AP examination.

**Calculus AB**

**Advanced Placement**, *weighted 1.0 with AP exam* **585100**  
 Grades: 11-12 Credit: 1  
 Prerequisite: Mathematical Analysis or  
 Advanced Algebra/Precalculus

Advanced Placement 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. College credit and/or advanced placement in college is available to those students receiving a qualifying score on the Advanced Placement Examination.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**Calculus BC**

**Advanced Placement**, *weighted 1.0 with AP exam* **586100**  
 Grades: 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 Advanced Placement Calculus AB course are included, it 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 Advanced Placement 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 called upon 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. College credit and/or advanced placement in college is available to those students receiving a qualifying score on the Advanced Placement Examination.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**Statistics**

**Advanced Placement**, *weighted 1.0 with AP exam* **598100**  
 Grades: 10-12 Credit: 1  
 Prerequisite: Algebra II

The Advanced Placement 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. College credit and/or advanced placement in college is available to those students receiving a qualifying score on the Advanced Placement Examination.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**Multivariable Calculus**

**Dual Enrollment**, *weighted 0.5* **583000** **NOVA**  
 Grades: 11-12 Credit: 1  
 Prerequisite: Calculus BC—Advanced Placement

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 normals, the Taylor polynomial, power and Taylor series, multivariable integration, vector function integration, and theorems by Gauss, Green, and Stokes.

# MUSIC

**Music Appreciation** **260000**  
 Grades 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 21<sup>st</sup> century.

Students explore music in a wide variety of musical styles and time periods in this course. They learn about the relationship of music to art, architecture, and history as well as learning about music technology and its use 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**  
 Grades 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 us.

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.

## INSTRUMENTAL MUSIC COURSES

**Instrumental Methods** **270000**  
 Grades 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 performances are not stressed, but a concert may be planned at the teacher's discretion.

**Performance Ensemble I** **272000**  
 Grades 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.

**Performance Ensemble II** **274000**  
 Grades 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.

Performance Ensemble 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** **275001**  
 Grades 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, as well as aural and notation reading skills. Students are expected to supply their own instruments.

**Intermediate Orchestra** **275002**  
 Grades 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 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 of regular school hours are a requirement.

**Advanced Orchestra** **275003**  
 Grades 9-12 Credit: 1  
 Prerequisite: Successful completion of HS Intermediate level 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 of regular school hours are a requirement.

**Artist Orchestra** **275004**  
 Grades 9-12 Credit: 1  
 Prerequisite: Successful completion of HS 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 Level 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 of regular school hours are a requirement.

**Jazz Ensemble** **276000**  
 Grades 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**  
 Grades 9-12 Credit: 1  
 Prerequisites: 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 hand 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**  
 Grades 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 the 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 hand 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 of regular school hours are a requirement.

Students must supply a standard nylon string classical guitar.

**Advanced Guitar** **295000**  
 Grades 9-12 Credit: 1  
 Prerequisites: 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 hand 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 of regular school hours are a requirement.

Students must supply a standard nylon string classical guitar.

**Artist Level Guitar** **275001**  
 Grades 9-12 Credit: 1  
 Prerequisites: Successful completion of Advanced Guitar, audition and 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 Level 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 of regular school hours are a requirement. Students must supply a standard nylon string classical guitar.

**Music Theory**  
**Advanced Placement**, *weighted 1.0 with AP exam* **262100**  
 Grades 9-12 Credit: 1  
 Prerequisites: Successful completion of Music Theory/History (262000) 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.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**VOCAL MUSIC COURSES**

**Mixed Chorus** **280000**  
 Grades 9-12 Credit: 1  
 Prerequisite: None

Students explore the fundamentals of singing as a group. Through participation in ensemble performances, students build self-confidence and the concept of teamwork. Through group performance, individual vocal skills are strengthened. Participation in ensemble performances is required.

**Small Vocal Ensemble** **278000**  
 Grades 9-12 Credit: 1  
 Prerequisite: Audition

The Small Vocal Ensemble offers unique opportunities for confident singers to work in a more intimate setting. Students receive specialized coaching in singing techniques and perform music in a wide variety of styles. Participation in ensemble performances is required.

**Advanced Chorus** **282000**  
 Grades 9-12 Credit: 1  
 Prerequisite: Audition

Students who are seeking a more intense performance setting will thrive as they explore more complex singing techniques.

Members of this group build their individual skills by performing in a variety of settings. Participation in concerts, as well as certain choral competitions, is required.

**Men's Chorus** **284000**  
 Grades 9-12 Credit: 1  
 Prerequisite: Audition

Students explore the techniques that enhance men's voices and perform music specifically for them.

Members of this group build their vocal skills by performing in a variety of settings. Participation in concerts as well as certain choral competitions is required.

**Women's Chorus** **286000**  
 Grades 9-12 Credit: 1  
 Prerequisite: Audition

Students explore the techniques that enhance women's voices and perform songs written specifically for treble voices.

Members of this group build their individual skills by performing in a variety of settings. Participation in concerts, as well as certain choral competitions, is required.

## NAVAL JUNIOR RESERVE OFFICERS TRAINING CORPS (NJROTC)

**Naval Science I** **848000**  
 Grades 9-12 Credit: 1  
 Prerequisite: None  
**Offered at LCHS only\***

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 U.S. Armed Forces in support of national objectives; and to develop a knowledge of basic military skills. Specific curriculum focus will be on naval science studies and leadership opportunities.

*\*Students enrolled at all other LCPS high schools may apply to attend the NJROTC program at LCHS on a space available basis. Interested students will need to talk with their home school guidance counselors for further information.*

**Naval Science II** **849000**  
 Grades 10-12 Credit: 1  
 Prerequisite: Naval Science I  
**Offered at LCHS only\***

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 in leadership theory, Naval Orientation and Career Planning, Citizenship in the U.S. and Other Countries, Naval History: 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.

*\*Students enrolled at all other LCPS high schools may apply to attend the NJROTC program at LCHS on a space available basis. Interested students will need to talk with their home school guidance counselors for further information.*

**Naval Science III** **847000**  
 Grades 11-12 Credit: 1  
 Prerequisite: Naval Science I and II  
**Offered at LCHS only\***

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 U.S. issues, and advanced military history studies are also included.

*\*Students enrolled at all other LCPS high schools may apply to attend the NJROTC program at LCHS on a space available basis. Interested students will need to talk with their home school guidance counselors for further information.*

**Naval Science IV**

**845000**

Grade 12

Credit: 1

Prerequisite: Naval Science I, II, and III

**Offered at LCHS only\***

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 U.S. issues, and advanced military history studies are also included.

*\*Students enrolled at all other LCPS high schools may apply to attend the NJROTC program at LCHS on a space available basis. Interested students will need to talk with their home school guidance counselors for further information.*

**SCIENCE**

*All of the science classes listed are laboratory science courses. Earth Science, Biology, and Chemistry all require the Virginia Standards of Learning 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—Honors, weighted 0.5**

**640200**

Grades 9-10

Credit: 1

Prerequisite: None

**SOI 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.

Honors Earth Science is designed as a rapidly paced, challenging course requiring advanced academic skills. Honors Earth Science students are expected to complete research and independent inquiry projects as a regular part of their course work.

*Students begin to develop skills needed to conduct in-depth scientific research during Honors Earth Science.*

**Earth Science—Academic**

**640300**

Grades 9-10

Credit: 1

Prerequisite: None

**SOI 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.

Academic Earth Science is designed as a challenging course requiring advanced reading and writing skills.

**Earth Science**

Grades 9-10  
Prerequisite: None

**640500**  
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 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.

**Biology—Honors, weighted 0.5**

Grades 9-10  
Prerequisite: None

**650200**  
Credit: 1

**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.

Honors Biology is designed as a rapidly paced, challenging course requiring advanced academic skills. *All Honors Biology students are expected to complete an in-depth, independent Science Research Project (SRP) as a required part of their course work.*

Honors Biology students may participate in the process leading to possible selection for participation in the Loudoun County Regional Science & Engineering Fair (RSEF).

**Biology—Academic**

Grade 10  
Prerequisite: None

**650300**  
Credit: 1

**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.

Academic Biology is designed as a challenging course requiring advanced reading and writing skills.

**Biology**

Grade 10  
Prerequisite: None

**650500**  
Credit: 1

**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.

**Biology**

**Advanced Placement, weighted 1.0 with AP exam**  
Grades 10-12

**655100**  
Credit: 1

Prerequisites: Biology—Honors or Academic and Chemistry (completed or may be 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 Advanced Placement 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.

AP final grades are "weighted" by 1.0 if the student passes the course and elects to take the related AP examination.

**Chemistry**

Grades 10-12

**660000**  
Credit: 1

Prerequisites: 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, redox equations, and the 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.

**Chemistry**

**Advanced Placement, weighted 1.0 with AP exam**  
Grades 11-12

**665100**  
Credit: 1

Prerequisites: Chemistry. 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 Advanced Placement 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.

AP final grades are "weighted" by 1.0 if the student passes the course and elects to take the related AP examination.

**Environmental Science** **656000**  
 Grades 11-12 Credit: 1  
 Prerequisites: Two Lab Science Credits. (Earth Science & Biology suggested) *Successful performance on 2 science SOL tests (Earth Science, Biology, Chemistry)*

Environmental science provides opportunity to synthesize information and knowledge of physics, chemistry, earth science, and biology while developing the Naturalist Intelligence.

Students will 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.

**Conceptual Physics** **673000**  
 Grades 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 exploring in depth the nature and characteristics of energy and its dynamic interaction with matter. Topics include mechanics, heat, 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**  
 Grades 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, heat, 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 will not be awarded another science credit for taking Physics 670000.

**Physics C**  
**Advanced Placement, weighted 1.0 with AP exam** **675100**  
 Grades 11-12 Credit: 1  
 Prerequisite: Physics  
 Co-requisite: Calculus

This course is a fast paced, college-level course in Physics that follows the course outline of the College Board's Advanced Placement 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.

AP final grades are "weighted" by 1.0 if the student passes the course and elects to take the related AP examination.

**Geospatial Science—Dual Enrollment, weighted 0.5** **670200**  
**Geospatial Science** **670201**  
*(This course is part of an expanded pilot program and may not be offered at all high schools)*  
 Grade 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 (JMU), Department of Geology and Geography. Students have the opportunity to earn 3 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 James Madison University faculty and staff. To earn the 3 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, weighted 0.5** **680000**  
 Grade 12 Credit: 1  
 Prerequisite: Completion of three Lab Sciences in different disciplines (to be chosen from Earth Science, Biology, Chemistry, Physics, or AP Sciences)

This elective science course is intended for seniors interested in continuing their study through an independent project in science, engineering, mathematics, or computer science. Students participating in 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 & Engineering Fair (RSEF).

This course can be used to satisfy one of the science requirements for the Standard or Advanced Studies Diploma.

## SOCIAL SCIENCE AND GLOBAL STUDIES

### World History/Geography to 1500

**Pre-AP**, *weighted 0.5*

Sequenced for Grade 9

Prerequisite: None

**740900**

Credit: 1

**SQL TEST** Starting with the human communities of early world history, this course teaches students to think critically about large global patterns and themes.

Since writing is a thinking process, all forms of writing—both formal and informal—are emphasized in this course. Essays and research that help students understand and use primary sources as historical evidence will be a focus. Students also have a chance to complete an inquiry-based project on a World History topic of interest.

This is a course in global history, and it is meant to serve as the foundation course for the tenth grade AP World History class.

### World History/Geography to 1500

**Academic**

Grades 9

Prerequisite: None

**740300**

Credit: 1

**SQL TEST** In this course students learn to think critically about world events and societies around the globe before the 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. They also have a chance to complete an inquiry-based project on a World History topic of interest.

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 we do today? What progress have humans made? What problems have we faced? What problems do we still have today?

### World History/Geography to 1500

Grades 9

Prerequisite: None

**740400**

Credit: 1

**SQL TEST** In this class, students learn to think critically about world events and societies around the globe before the 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, and with teacher guidance helps students answer them: What changes and events have caused people to live the way we do today? What progress have humans made? What problems have we faced? What problems do we still have today?

### World History/Geography

**Advanced Placement**, *weighted 1.0*

Grades 10-12 (Sequenced for Grade 10)

Prerequisite: World History/Geography I

**751000**

Credit: 1

**SQL TEST** Today students 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 II prepares students to live in this global 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 interest.

This is a course that teaches students to think globally and to develop their ability to use evidence to make arguments and draw conclusions.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

### World History/Geography 1500 to present

**Academic**

Grades 10

Prerequisite: None

**745300**

Credit: 1

**SQL TEST** In World History II, students expand your ability to think clearly and carefully about social and historical forces that have shaped their 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 we do today? What progress have humans made? What problems do we still have today? What solutions to these problems can I offer?

### World History/Geography 1500 to present

Grades 10

Prerequisite: None

**745400**

Credit: 1

**SQL TEST** In World History II, students develop their ability to think clearly and carefully about social and historical forces that have shaped their lives. They learn to compare the roles of different groups of people—including young people—in different times and places. They also 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 we do today? What progress have humans made? How will I cooperate with people across the globe to offer some solutions to today's problems?

**United States History**

**Advanced Placement, weighted 1.0 with AP exam** **750100**  
 Grade 11 Credit: 1  
 Prerequisite: None

**SOL TEST** 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 compare the roles of different groups of people—including young people—in different times and regions. They 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.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**United States and Virginia History**

**Academic** **750300**  
 Grade 11 Credit: 1  
 Prerequisite: None

**SOL TEST** In U.S./Virginia 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 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 their needs, formed communities, and developed into new, diverse, and complex societies.

**United States and Virginia History**

**750400**  
 Grade 11 Credit: 1  
 Prerequisite: None

**SOL TEST** In U.S./Virginia History students. develop 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 regions of this country. 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 the ability to independently use historical evidence to make arguments and draw conclusions. This course supports students as they improve their ability to think critically and to examine how the people of America have met needs, formed communities, and developed into a new, diverse, and complex society.

**Combination United States Government and Comparative Government**

**Advanced Placement, weighted 1.0 with AP exams** **762000**  
 Grade 12 Credit: 1  
 Prerequisite: None

*This course combines AP US 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 are expected to take **both** the AP US Government and the AP Comparative Government exams in May. All students will be prepared for both exams.*

In AP Government, students expand their ability to think clearly and carefully about social and political forces that shape their lives. Imagine living under a political system where you were “guilty until proven innocent”! And think about what it would be like to have an election where each office had only one candidate—that’s a different interpretation of “democracy”! In this class, students study the principles of government in the US and the institutions and laws used to make government work. Students also compare our systems and laws to those of other countries so that they can see how different societies define “justice” and how they view the notions of civil rights and civic responsibility.

Through the examination and comparison of government systems, students develop and improve their analytical skills and 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 communication skills, since government is a social topic. Analytical writing and active listening skills will be significantly developed as students improve their ability to participate in political debate with fairness and respect for diverse perspectives.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examinations.

**United States/Virginia Government**

**Academic** **760300**  
 Grade 12 Credit: 1  
 Prerequisite: None

“Agitate. Agitate. Agitate.” These were the words of Frederick Douglass when he was asked what people should do to press the US Government into abolishing slavery. Being a citizen in the democratic republic of the United States does not just mean paying taxes and voting; our Democracy depends on citizens paying attention and getting involved.

In US/Virginia Government, students expand their ability to think clearly and carefully about social and political forces that shape their lives.

Students 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 the ability to think critically and to examine how the people of America meet their needs for constructive political life in our diverse society. It prepares students to be a thoughtful and active citizens of the United States of America.

**United States/Virginia Government****760400**

Grade 12

Credit: 1

Prerequisite: None

A group of high school students once raised an issue that ended up in the US Supreme Court. Being a citizen in the democratic republic of the United States does not just mean paying taxes and voting. Our Democracy depends on citizens paying attention and getting involved.

In this course teachers help students develop their ability to think clearly and carefully about social and political forces that shape their lives. In learning about the structures and theories behind the American Constitutional system, student increase their understanding of the impact the US Constitution has had on our diverse society.

Students continue to develop their thinking in an organized way for clear communication in all forms of writing—both formal and informal. The course prepares students to be thoughtful and active citizens of the United States of America.

**Economics****782700**

Grades 10-12

Credit: 0.5

Prerequisite: None

Being a consumer in the U.S., individuals have probably asked many economic questions. This course helps students investigate those questions. Students discover that basic economic principles are at work in their lives every day and provides understanding of these principles to help them make better economic choices.

Students also learn how governments and private financial institutions impact their economic choices by the decisions made about “who gets what” in a world with scarce resources.

*Students who enter 9<sup>th</sup> grade in 2011-2012 must take a one semester course in Economics and a one semester course in Personal Finance in order to graduate. Taken in grades 10 through 12, this course fulfills the “Economics” one semester course requirement for graduation.*

## SOCIAL SCIENCE AND GLOBAL STUDIES ELECTIVES

**Survey of African History, weighted 0.5****741200***Dual Enrollment with NVCC*

Grades 11, 12

Credit: 1

Prerequisite: None

Pretend you made a new friend about two years ago, and she became so impressed with you that she wanted to write your biography—but she started her story of you just when *she* met you. She left out everything that happened to you and all of your accomplishments that took place before you knew her! That's what has often happened with African history—the people who have written a lot of it started the story when Europe began to interact with the continent, and have not always told the complete story of rich traditions, major events, and diverse cultures that stretch back far in time and across this huge land mass.

If students want to learn about the history of this gigantic and diverse place, and would like to look at history “through African eyes,” then they should take this course. Students should come ready to read, discuss, write, and learn a lot, because when they complete this course successfully, they will earn college credit offered through Northern Virginia Community College.

This course may not be offered at all schools.

**Economics—Micro and Macro****Advanced Placement, weighted 1.0 with AP exams****782000**

Grades 11, 12

Credit: 1

Prerequisite: None

*Students wishing to fulfill the “Economics” portion of the Economics and Personal Finance graduation requirement with this course must complete both AP components—Micro and Macro.*

The **microeconomic** component of this AP course will give students 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 students develop an understanding of markets and the role the government plays in promoting greater efficiency and equity in the economy.

The **macroeconomic** component of this course gives students a thorough understanding of the principles of economics as they apply to *the economic system as a whole*. It focuses on national income and price-level determination and will develop familiarity with economic performance measures, the financial sector, economic growth and stabilization policies, and international economics.

This course requires students to think critically about the complex issues surrounding a world with limited resources.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examinations.

**Global Social Issues**

**775000**

Grades 11, 12

Credit: 0.5

Prerequisite: None

Given the rapid pace of integration in today's world, we will likely find that even if we—the people on this planet—have numerous differences, we face issues and challenges that are connected. The tsunami in the waters of Indonesia swamps not only the islands of that country but India and Sri Lanka too—prompting relief efforts from all over the globe. The explosion of the BP Deepwater oil rig is an unprecedented environmental disaster, but also severely affects the livelihood of fishermen, hotel keepers, shop owners and virtually everyone who lives along the Gulf Coast, and then its ripple effect is felt everywhere. *Slumdog Millionaire*, a movie about an unlikely TV game show participant in India, wins an Oscar for best film, and in the telling of the story, informs us of the complexities and challenges of modern Indian life.

In *Global Social Issues*, students study how humans behave and interact with each other. In some instances people and nations working together on environmental concerns; and in some, other people and nations work at cross-purposes on the environment. On other issues, like women's rights, we discover a wide spectrum of views and approaches according to a particular society's culture and history.

**Human Geography**

**Advanced Placement, weighted 1.0 with AP exam**

**741100**

Grades 11, 12

Credit: 1

Prerequisite: None

The world is getting smaller and smaller as more and more people interact, as time between far-flung places decreases, and as communication between opposite sides of the planet becomes momentary. So, all of us on planet Earth are going to have to learn how to explain answers to these questions to ourselves and each other, and to try to work them out with people whose languages, cultures, and traditions create a huge diversity of human points of view. AP Human Geography helps students analyze the world and their relationship to it. They learn to look for geographic causes for events in different regions, to compare geographic features and their effects on human life, and 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 in ways that will really make their brains stretch. AP Human Geography helps students be a part of the solution to the challenges facing humanity on Earth in the 21<sup>st</sup> Century.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**Modern International Relations**

**784700**

Grades 11, 12

Credit: 0.5

Prerequisite: None

In this course students study 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. Participants must pay attention to the news, too, because people are moving and taking actions all the time in today's world, and there is no doubt that our lives will be affected by people or events from beyond our national borders. *Modern International Relations* helps students learn how they can contribute to the solutions to international problems, and develop their own abilities to function on our increasingly interconnected globe.

**Psychology**

**786700**

Grades 11, 12

Credit: 0.5

Prerequisite: None

Psychology provides students with ideas about how to address many questions about human behavior. There are biological, emotional, and situational reasons psychologists provide as answers to these questions. This course provides opportunities to study the reasons and develops better understanding of why we do what we do and the ability to generate individual answers. After all, we are humans and have some understanding of why we act the way we act?

Psychology helps students think about human behavior in an organized way. Individuals who have ever wondered about, been angry at, or been confused by, their own—or another human's—behavior should select this course. They may not get all the answers they are seeking, but will definitely learn some thought-provoking ways to think about one of the most fascinating life forms on planet Earth: human beings!

**Psychology**

**Advanced Placement, weighted 1.0 with AP exam**

**787100**

Grades 11, 12

Credit: 1

Prerequisite: None

Psychologists study all aspects of human behaviors—those we have in common with animals and those we do not; those that range from peace-making to the microscopic functioning of a nerve cell. Students become a psychologist in this course and expand their minds mind to analyze human behavior in methodical, organized, large-scale, small-scale, inquiry-based approaches. They work hard to read about, understand, write about, discuss, and explain the ways humans behave. You will study how humans learn, how we inherit traits from our parents, how we act in groups, why we have emotions, and how, sometimes, we engage in behaviors that are destructive.

Students should take AP Psychology if human beings fascinate them and if they are ready to work hard to understand why we humans do the things we do.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**The World of Ideas**

Grades 11, 12

Prerequisite: None

**741300**

Credit: 0.5

This course focuses on three main Philosophical questions:

- Is there a purpose to life?
- If you had to state a definition of a human being, what would you say?
- How can we human beings *know* anything for sure?

In this course, these are the questions explored by studying the answers given to them by a diversity of cultures and traditions across the globe. In China, Confucius said that one's purpose is to work hard at maintaining social relationships. The French Existentialists said that individuals are a purposeless organisms—unless they *design* their own purpose! Students will explore which they think is right and why there may be different answers to the same question.

Students in this course will explore the world of ideas by taking this course and may develop some ideas about their place in the universe—or may generate many more questions that they would like to explore.

**World Religions**

Grades 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 passage” and other ceremonies? Why do they have *different types* of ceremonies? In this course students explore questions like this 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. There are many beautiful, meaningful, and inspirational forms of religion in the world, and they all tell us a great deal about the world views and cultures of a diversity of people living on the globe today. Students who take this course will improve their understanding of the people who share this planet with them.

## SPECIAL EDUCATION

**Basic Skills**

Grades 9-12

Prerequisite: None

**080070**

Credit: 0.5 per semester, may be taken two semesters per year

*Graded as 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 their 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, math, 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**

Grades: 10-12

Prerequisite: None

**080570**

Credit: 1

Career Pathways is an elective course for students with Individualized Education Plan (IEP). The course focus is goal setting and self-determination as it relates to transitioning from secondary to post-secondary life.

Students develop skills necessary for 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.

**Personal Living and Finance\***

Grades: 9-12

Prerequisite: Mathematics 8

**591070**

Credit: 1 elective credit\*

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 may be used to fulfill the mathematics requirements for a Modified Standard Diploma.*

**Reading Workshop Strategies****Strategies 1: 101100****Strategies 2: 101200****Strategies 3: 101300****Strategies 4: 101400**

Elective Credit: 1

Grades 9-12  
Prerequisite: None

Reading Strategies is an elective course for students with Individual Education Plans (IEP) in need of specific instruction in reading and reading strategies. The course is taught based upon students' individual needs.

## TECHNOLOGY EDUCATION

### **Aerospace Science** **810000** Grades 10-12 Credit: 1

Aerospace Science is a Northern Virginia Regional 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. It will be available at Loudoun County high schools.

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 will count as an elective credit.*

### **Technology Education I** **851000** Grades 9-12 Credit: 1

This course is designed to introduce students to the world of technology and design. Specifically, students explore the use of cutting-edge technology in the 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.

### **Technology Education II** **852000** Grades 10-12 Credit: 1 Prerequisite: Technology Education I

Students focus on 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 material 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.

### **Computer Aided Drafting & Design I** **853000** Grades 10-12 Credit: 1 Prerequisite: None

Computer Aided Drafting 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.

### **Computer Aided Drafting & Design II** **854000** Grades 11-12 Credit: 1 Prerequisite: CADD I

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

### **Applied Technology I** **856000** Grades 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 to be explored include Bio-Technology, Communications, Construction, Manufacturing, Power and Energy, and Transportation.

### **Applied Technology II** **857000** Grades 10-12 Credit: 1 Prerequisite: Applied Technology I

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.

### **Applied Technology III** **858000** Grades 11-12 Credit: 1 Prerequisite: Applied Technology II

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.

## OTHER

**AVID 1** **092000**  
Grade 9 Credit: 1

Prerequisite: None  
*LCHS, PVHS, & 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 10 Credit: 1

Prerequisite: None; AVID 1 recommended  
*LCHS, PVHS, & 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** **094000**  
Grade 11 Credit: 1

Prerequisite: AVID 2  
*LCHS & PVHS 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** **095000**  
Grade 12 Credit: 1

Prerequisite: AVID 3  
*LCHS & PVHS 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.

**Personal Finance** **825000**  
Grades 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 provides the basis for responsible citizenship and career success. In addition to developing personal finance skills, students in the 36-week course 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.

**SAT Preparation** **071000**  
Grades 10-12 Credit: 0.5  
Prerequisite: None

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 I, 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 will be given to seniors for the first semester and to juniors during second semester. Interested sophomores may have access if space permits.

# LOUDOUN COUNTY PUBLIC SCHOOLS ACADEMY OF SCIENCE

The mission of the LCPS Academy of Science (AOS) is to provide an academic environment where students are encouraged to develop creative scientific endeavors of their own design while having the opportunity to pursue a rich, well-rounded high school experience. A student at AOS will acquire 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.

The cornerstone of science preparation is a ninth/tenth grade integrated science program which blends the physical sciences of physics, chemistry, and earth science into a seamless, inquiry based lab course in preparation for AP coursework. The goal of the lab program is student-designed investigations coupled to an in-depth writing/scoring rubric. In addition, sophomores begin instruction in basic research techniques to be followed by two years of research in a topic of their choosing. The math program offers courses from Algebra and Trigonometry through Multivariable Mathematics. All courses have a heavy component of statistics and modeling and are taught in terms of practical application in order to coincide with the science program.

AOS students are selected through an application process. Rising ninth grade students are invited to attend after a competitive process that evaluates test scores, academic achievements, writing samples, teacher recommendations, and self-reported interests and activities. Student motivation and interest in science are the most valuable characteristics of AOS students. Highly motivated students who are consistent, dedicated learners have the greatest chance of success.

Accepted students are required to enroll as full-time students in Loudoun County Public Schools. Students will attend AOS on alternating days, with the opposite day being spent at their home high school. Students will be required to take specific classes at AOS in grades 9 and 10, but will begin to have choices including Advanced Placement (AP) classes in grades 11 and 12. AOS students may elect to take additional AP math and science classes at the home school. All other content area classes will be taken at the home school.

At a minimum, students must be enrolled in Algebra I during Grade 8 to be considered for admission to AOS. Geometry is also highly recommended; however, it may be completed during summer school prior to Grade 9 or 10.

Students planning on AOS should work closely with their counselors to develop a "Plan of Studies" which allows them to complete graduation requirements and plan for electives. Possible scheduling conflicts may necessitate the need to choose among options. Selecting a world language, such as Spanish, where many sections of advanced levels are offered will help to reduce scheduling conflicts. Singleton electives may be impossible for AOS students to schedule at the home school every year. Some AOS students may not be able to enroll in every elective desired at the home school.

Interested students should visit the AOS homepage for the most current information concerning the application process: [www.lcps.org/aos](http://www.lcps.org/aos). District-wide information sessions and open house programs for prospective students are held prior to the application deadline.

The LCPS AOS, located at Dominion High School, opened in September, 2005, and expanded in September 2006 to include a program of studies for grades nine through twelve. *Loudoun County provides transportation for all students who attend AOS.*

Any questions about AOS and the application process should be directed to the Academy of Science office, 571-434-4470.

## HIGH SCHOOL PLAN OF STUDIES FOR AOS COURSES

GRADE 9	GRADE 10	GRADE 11	GRADE 12
<b>AOS Integrated Science I &amp; Integrated Science II</b> (Earth Science, Chemistry, Physics)	<b>AOS Integrated Science III</b> (students will take SOL for Earth Science & Chemistry)	<b>AP Biology</b> or <b>AOS Biology</b>	<b>AP Sciences</b> (Chemistry, Biology, Physics, Environmental)
<b>AOS Analytic Geometry, Functions, and Trigonometry with Transformations</b>	<b>AOS Pre-Biosciences Analysis</b> or <b>AOS Pre-Physical Sciences Analysis</b>	<b>AOS AB Calculus with Statistics</b> or <b>AOS BC Calculus with Statistics</b>	<b>AOS AB Calculus AP with Statistics</b> or <b>AOS BC Calculus AP with Statistics</b> or <b>AOS Multivariable Calculus</b>
	<b>Sophomore Science Research</b>	<b>Junior Science Research</b>	<b>Senior Science Research</b>

## AOS SCIENCE COURSES

**AOS Integrated Science I**, *weighted 0.5* **664900**  
Grade 9 Credit: 1

**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**, *weighted 0.5* **645900**  
Grade 9 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 will 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**, *weighted 0.5* **654900**  
Grade 10 Credit: 1  
Prerequisite: AOS Integrated Science I & 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 will 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**, *weighted 0.5* **652900**  
Grade 11 Credit: 1

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 will be relevant to the topic covered. Biology is a required class for AOS students in grade 11. Students may select either AOS Biology or AP Biology. Students may also take these classes in a series: AOS Biology in grade 11 and AP Biology in grade 12.

**AOS Sophomore Science Research**, *weighted 0.5* **651900**  
Grade 10 Credit: 1  
Prerequisite: AOS Integrated Science I & 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 utilized 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**, *weighted 0.5* **661900**  
Grade 11 Credit: 1

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**, *weighted 0.5* **671900**  
Grade 12 Credit: 1

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 Biology**

**Advanced Placement, weighted 1.0 with AP exam** **664100**  
 Grades 11 & 12 Credit: 1

This advanced course is a college-level, fast-paced course that follows the course outline of the College Board’s Advanced Placement 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. Biology is a required class for AOS students in grade 11. Students may select either AOS Biology or AP Biology. Students may also take these classes in a series: AOS Biology in grade 11 and AP Biology in grade 12.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**AOS Environmental Science**

**Advanced Placement, weighted 1.0 with AP exam** **674100**  
 Grade 12 Credit: 1

This advanced course is a college-level, fast-paced course in Environmental Science that follows the course outline of the College Board’s Advanced Placement 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.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**AOS Chemistry**

**Advanced Placement, weighted 1.0 with AP exam** **669100**  
 Grade 12 Credit: 1

This advanced course is a college-level, fast-paced course in Chemistry that follows the course outline of the College Board’s Advanced Placement 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.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**AOS Physics**

**Advanced Placement, weighted 1.0 with AP exam** **662100**  
 Grade 12 Credit: 1

This course is a college-level, fast-paced course in that follows the course outline of the College Board’s Advanced Placement 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 are expected to take the AP Physics examination for possible college credit.

AP final grades are “weighted” by 1.0 if the student passes the course and elects to take the related AP examination.

**AOS MATH COURSES**

**AOS Analytic Geometry, Functions, and Trigonometry with Transformations, weighted 0.5** **541300**  
 Grade 9 Credit: 1

This course begins with an introduction to transformations and matrices with a sampling of applications. This early work includes several topics in analytic geometry. The early work is then integrated into a study of the creation and interpretation of linear and quadratic models for data. The work with quadratics includes a transformations based introduction to the complex number system. Transformation ideas are also applied to provide a full introduction to triangle trigonometry with applications. Modeling ideas are extended with the introduction of a variety of the families of exponential, logarithm, and power functions to describe patterns in a broader range of data sets. Criterion for testing the fit of models to data is explored. The overriding aim of this course is to help students focus on the difference between knowing how to perform special techniques and understanding the underlying mathematics so that the techniques can be applied in a variety of settings.

**AOS Pre-Biosciences Analysis, weighted 0.5** **562000**  
 Grade 10 Credit: 1

In this course the students first study the models used to make inferences about the distribution of means computed from samples. This study is followed by a continuing encounter with functions used to model dynamic processes. Special attention is given to discrete and continuous models for population dynamics, including an introduction to logistic models. The work with modeling includes tools used to model patterns in rates of change. This is the setting for an introduction to derivatives with some relevant applications. The course includes a unit on the design of experiments intended to identify relevant conditions causing specific effects.

**AOS Pre-Physical Sciences Analysis, weighted 0.5** **562200**  
 Grade 10 Credit: 1

This course begins with the study of functions used to model the distribution of means computed from samples. Students are introduced to the design of switching circuits. The students continue their study of function as models for data with an emphasis on data collected from physical experiments. The analysis of motion in one and two dimensions is the setting for introducing derivatives as models for patterns in rates of change. Circular functions are introduced as models for processes exhibiting periodic behavior. The course includes a unit on the design of experiments intended to identify relevant conditions causing specific effects.

**AOS AB Calculus with Statistics**

**Advanced Placement, weighted 1.0 with AP exam** **561100**  
 Grades 11 & 12 Credit: 1

This course covers all the topics in the College Board's description of an AB level Advanced Placement 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 Advanced Placement exam in May, the students are introduced to classical methods of statistical inference.

AP final grades are "weighted" by 1.0 if the student passes the course and elects to take the related AP examination.

**AOS BC Calculus with Statistics**

**Advanced Placement, weighted 1.0 with AP exam** **571100**  
 Grades 11 & 12 Credit: 1

This course covers all of the topics in the College Board's description of a BC level Advanced Placement 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 Advanced Placement exam in May, the students are introduced to classical methods of statistical inference.

AP final grades are "weighted" by 1.0 if the student passes the course and elects to take the related AP examination.

**AOS Multivariable Calculus—Dual Enrollment, weighted 0.5** **583001**

**AOS Multivariable Calculus, weighted 0.5** **583100**  
 Grade 12 Credit: 1

This course includes an introduction to vector calculus with special emphasis on the kinematics and dynamics models of motion in two and three dimensions. The course also includes techniques applied in physics to analyze in detail the modeling of the effect of force fields.

## MONROE TECHNOLOGY CENTER AND THE LOUDOUN GOVERNOR'S CAREER AND TECHNICAL ACADEMY

**Administration of Justice I, weighted 0.5** **887000** **NOVA**  
 Grades: 11 or 12 Credits: 3

Prerequisite: Competitive Application Process

This two-year course is designed for juniors and seniors. The curriculum prepares students for entry-level employment in the law enforcement and criminal justice system as well as entrance into an institution of higher learning in the related fields of criminal justice, political science, and law. A dual enrollment agreement with Northern Virginia Community College allows qualifying students to earn twelve (12) college credits.

Topics include, but are not limited to, criminal justice professions, law ethics, communication skills, interpreting criminal and civil laws, use of legal force; emergency response, traffic control, patrol functions and procedures; criminal investigations, search and seizure, arrest and court procedures, the juvenile justice system; crime scene investigations; and crime prevention.

**Administration of Justice II, weighted 0.5** **887100** **NOVA**  
 Grade: 12 Credits: 3

Prerequisite: Administration of Justice I

This is a second year course designed for seniors to prepare them for entry-level employment in the law enforcement and criminal justice system as well as entrance into an institution of higher learning in the related fields of criminal justice, political science, and law. The course will explore career opportunities in the criminal justice community, understanding the constitutional rights of the accused and how it impacts interviews and interrogations, preparing search and arrest warrants, the history of organized crime and criminal activities associated with those groups, international terrorism organizations and counter-terrorism strategies, advanced criminal investigation and the use of investigative techniques to collect evidence, as well as advanced crime scene investigation.

**Advanced Networking/**

**Network Administration (CISCO)** **895000**  
 Grades: 11 or 12 Credits: 3

Prerequisite: Competitive Application Process

Network Administration prepares students to enter employment and/or further education in the computer networking field. Students learn how to design, install, configure, operate, and trouble shoot simple and complex networks. Topics covered include network architecture, industry standards and communication protocols, network devices (such as routers, switches, and hubs), media selection, data transmission, and cabling.

Students in Network Administration should have strong reading comprehension as well as solid algebra skills. Both Reality Based Training (RBT) and Cisco require an 80% or higher on any written tests and 100% on practical tests. Students may obtain a copper and fiber optic certification. Students will study basic standards and proper manufacturing techniques used in the field.

Network Administration uses the CISCO Certified Network Associate (CCNA) curriculum. This course prepares students to

take two CISCO certification tests: CISCO test #ICND1 (CISCO Certified Entry Network Technician (CCENT) and the CISCO test ICND#2 (CCNA).

**Auto Collision Repair Technology I** **867000**  
 Grades: 11 or 12 Credits: 3  
 Prerequisite: Competitive Application Process

This two-year 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.

**Auto Collision Repair Technology II** **868000**  
 Grades: 12 or Post-Graduate Credits: 3  
 Prerequisite: Collision Repair Technology I

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 will be prepared to perform many aspects of collision repair and will qualify for sponsored apprenticeship programs.

**Auto Servicing Technology I, weighted 0.5** **862000**   
 Grades: 11 or 12 Credits: 3  
 Prerequisite: Competitive Application Process

This two-year 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, 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 steering and suspension, electronics, and engine performance.

A dual enrollment agreement with Northern Virginia Community College allows qualifying students to earn up to twelve college credits. Extended lab times outside of the school day are sometimes required to meet prescribed competency attainment. This course is part of the Loudoun Governor's Career & Technical Academy.

**Auto Servicing Technology II, weighted 0.5** **863000**   
 Grade: 12 or Post-Graduate Credits: 3  
 Prerequisite: Auto Servicing Technology I

This program builds upon the skills learned in Auto Servicing Technology I.

An industry standard curriculum, 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 brakes, engine repair, manual drive train and axles, automatic transmission and transaxles, and air conditioning.

*Note: Post-secondary students cannot receive Dual Enrollment Credit.*

A dual enrollment agreement with Northern Virginia Community College allows qualifying students to earn up to fourteen college credits. This course is part of the Loudoun Governor's Career & Technical Academy.

**Biotechnology** **885200**   
 Grades: 11 or 12 Credit: 3  
 Prerequisite: Biology, Competitive Application Process

This one-year course is in the Loudoun Governor's Career and Technical Academy introducing students to the world of biotechnology. Simply stated, biotechnology is the use of living organisms or their products to modify human health and the human environment. Students explore biotechnology as it relates to research, bioethics, forensics, health and medical fields, agriculture, and environmental management.

Students engage in lab work in the greenhouse, in the field and off campus and will learn about and use a variety of laboratory equipment such as electrophoresis chambers, spectrophotometers, thermal cyclers, micropipettors, etc. Additionally, they will be involved in research with the university and professional community through scientific inquiry and online mentorship.

**Building Construction I** **865000**  
 Grades: 11 or 12 Credits: 3  
 Prerequisite: Competitive Application Process

In the first year of this two-year course, students acquire basic understanding of residential construction and the carpentry trade in addition to developing the skills to implement their acquired knowledge. The program also provides instruction on plan reading and comprehension.

Units of instruction include the completion of an 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.

Computer generated design programs (Solid Builder) and "Green Construction" techniques are emphasized in order to prepare students for advanced technologies in the field and essential environmental considerations.

**Building Construction II**

Grades: 12 or Post-Graduate

Prerequisite: Building Construction I

**866000**

Credits: 3

Students expand their knowledge base with advanced skills, frequently working independently. They develop leadership skills by leading a crew of other students.

Students earn their OSHA 10 Card Certification and complete more in-depth work with areas of computer design and "Green Construction."

Upon successful completion of this program, students will be prepared to perform many aspects of building construction and will be eligible for sponsored apprenticeship programs. The graduating students receive professional accreditation from the NCCER (National Center for Construction Education & Research) for their course work.

**Computer &****Digital Animation I, weighted 0.5**

Grades: 11 or 12

Prerequisite: Competitive Application Process

**839003**

Credits: 3

Computer and Digital Animation I is an introductory course in digital content creation and animation. Students produce computer generated models, characters and animations using high end software. Students study the production pipeline from story idea to final render. The software used is 3ds Max for modeling and animation and Mudbox for 3d sculpting.

This course is part of the Loudoun Governor's Career & Technical Academy. A dual enrollment agreement with Northern Virginia Community College allows eligible students to earn nine college credits.

Students selected for the 2011-2012 Computer and Digital Animation program will have the opportunity to take a second year of the course beginning in 2012-2013.

**Computer & Digital Animation II**

Grades 12 or Post Grad

Prerequisite: Computer and Digital Animation I

**839004**

Credits: 3

Computer and Digital Animation II is an intermediate course in digital content creation. It is a continuation of Computer and Digital Animation I. Students produce CG models, characters and animations using primarily Maya and Motion Builder. Students create content suitable for TV, film, computer simulations, computer games and architectural visualization.

**Computer Integrated Engineering & Design (CIED)/  
Introduction to Engineering, weighted 0.5**

Grades: 11 or 12

Prerequisite: Competitive Application Process

Level: Honors

**898000**

Credits: 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, CAD/CAM, electrical systems, fluid systems, materials engineering, mechanical systems, quality assurance, computer control, solar

photovoltaic installation, and wind turbine installation. Students will be introduced to Solidworks, Mastercam and mill/lathe CNC programming. A solid understanding of basic algebraic operations is needed.

CIED gives students a jump start in pursuing careers in engineering and engineering technology. Students who complete the course will be prepared to take their skills to institutions of higher education or to related career fields.

This course is part of the Loudoun Governor's Career & Technical Academy. A dual enrollment agreement with Northern Virginia Community College allows qualifying students to earn nine college credits.

**Computer Systems Technology/****Information Technology Essentials, weighted 0.5**

Grades: 11 or 12

Prerequisite: Competitive Application Process

**872000**

Credits: 3

The Computer Systems Technology (CST) program is offered at the junior or senior level of high school as a one-year, three-credit course. This program is also dual enrolled with Northern Virginia Community College, offering three college credits to students who qualify.

CST is a comprehensive diverse program covering the fundamentals of Information Technology with exploration of computer technology, networking, and security. Students acquire the skills required to identify hardware, peripherals, networking, and security components.

Successful candidates will understand the functionality of operating systems and troubleshooting methodology of hardware, installation, configuration, upgrade and maintenance, practice proper safety procedures and will effectively interact with customers and peers.

In addition, individuals will gain real industry experiences through subject matter expert workshops that are designed to address the core skills of information technology for employability in today's careers.

Students considering CST should have strong reading comprehension, advanced math aptitude, excellent keyboarding skills, and the desire to research and explore multiple subject areas and issues within the Information Technology / Telecommunications field.

Upon successful completion of CST, students have the option of obtaining the CompTIA A+ Certification. The CompTIA A+ Certification is the international, vendor-neutral certification and industry standard for computer support technicians. Certification requires passing two exams; CompTIA A+ Essentials and CompTIA A+ Practical Application; average cost to student is \$200 for exams. The CompTIA Net+ Exam is also offered to advanced students.

**Cosmetology I**

Grades: 11 or 12

Prerequisite: Competitive Application Process

**873000**

Credits: 3

The first year 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.

Regular attendance is essential for success in this course.

Students are required to purchase a cosmetology kit which includes items needed for the two-year program.

**In order to take the State Board of Cosmetology Licensing Examination, a student must successfully complete the program AND perform the required number of competencies in the lab AND present a United States Government issued identification at the time of the Board exam. Passing the State Board Examination is required to be employed as a licensed cosmetologist.**

**Cosmetology II**

**874000**

Grades: 12 or Post-Graduate

Credits: 3

Prerequisite: Cosmetology I

Students are taught the advanced skills necessary in developing job entry requirements as a cosmetologist by performing the services expected in a professional salon environment. Advanced skills include hair cutting; permanent waving and chemical relaxing services; tinting, 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 & 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.

Regular attendance is essential for completion of the required competencies needed for the State Board Exam. Students are expected to sit for the State Board Examination at the conclusion of Cosmetology II.

**In order to take the State Board of Cosmetology Licensing Examination, a student must successfully complete the program AND perform the required number of competencies in the lab AND present a United States Government issued identification at the time of the Board exam. Passing the State Board Examination is required to be employed as a licensed cosmetologist.**

**Culinary Arts I**

**875000**

Grades: 11 or 12

Credits: 3

Prerequisite: Competitive Application Process

This two-year program is designed to prepare students for employment in the fast-growing 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.

Many opportunities exist for students 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. Students complete the ServSafe Food Safety Manager Training and Certification course and examination.

**Culinary Arts II**

**876000**

Grades: 12 or Post-Graduate

Credits: 3

Prerequisite: Culinary Arts I

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 do 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.

Students who successfully complete Culinary Arts I and II, a 400-hour paid mentorship program, and pass both the Level 1 and Level 2 ProStart exams will receive a ProStart certificate from the National Restaurant Association. The certification will count as a "student choice" verified credit towards graduation. Students can also earn advanced standing at NOVA, Johnson & Wales, The Art Institute and many other culinary schools.

**Emergency Medical Technician**

**861600 NOVA**

**(EMT), weighted 0.5**

Grades: 11 or 12

Credits: 3

Prerequisite: Competitive Application Process

Must be 16 years of age prior to the first day of class and be affiliated with a volunteer fire or rescue department in Loudoun County.

The EMT (Emergency Medical Technician) 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 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.

**Environmental****Plant Sciences**, *weighted 0.5*

Grades: 11 or 12

Prerequisite: Competitive Application Process

This intensive course focuses on the science and art of studying, experimenting with, using, growing, designing with and maintaining ornamental plants. Students cover topics such as sustainability and eco friendly landscape design; plant physiology; reproduction, propagation and production; urban forestry; floriculture; floral design; conservation and natural resource management; greenhouse management; turf management; and horticultural therapy.

Students have the opportunity to receive certifications through the *Virginia Nursery and Landscape Association*, the *Virginia Flower Growers Association* and the *Virginia Department of Agriculture and Consumer Services* after passing these industry exams.

There are labs both on and off campus for each component of the course and students are involved with many professors, government and industry professionals during the academic year.

This is a *Loudoun Governor's Career and Technical Academy* course. Eligible students who are dual-enrolled with NVCC Hort 100, 115 and 121 earn nine college credits upon successful completion of the course.

885100  **NOVA**  
Credits: 3

**Firefighter**, *weighted 0.5*

Grades: 11 or 12

Prerequisite: Competitive Application Process

Must be 16 years of age prior to the first day of class and be affiliated with a volunteer fire or rescue department in Loudoun County.

During this one-year course, 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.

There is a combination of classroom study, scenarios, and modular practical experiences that prepare 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 carrying out interior attack and search operations.

**Graphic Communications I**

Grades: 11 or 12

Prerequisite: Competitive Application Process

Students are introduced to all areas of graphic communications. This two-year program provides technical training in layout and design, desktop publishing, digital imaging, digital file preparation, digital and sublimation printing, as well as the offset printing process.

Related information and economic factors of printing are included.

This program has received the highest national accreditation in the following five areas: Introduction to Graphic

**879000**

Credits: 3

Communications, Advertising Design, Digital File Preparation, Offset Press Operations, and Bindery and Finishing.

**Graphic Communications II**

Grades: 12 or Post-graduate

Prerequisite: Graphic Communications I

The second year of Graphic Communications emphasizes advanced training using various pieces of equipment and software applications. Digital imaging, advanced work in desktop publishing, estimating costs, customer service, employment, and job seeking skills will be covered. Students work on jobs with actual clients from concept to completion in a real world graphic communication environment. A completed portfolio is a requirement of the second year.

Graphic Communications is a multi-faceted industry with a wide range of career options including designers, publishers, art directors, web designers, packaging engineers, computer programmers, marketing specialists, writers, editors, and many more.

This program has received the highest national accreditation in the following five areas: Introduction to Graphic Communications, Advertising Design, Digital File Preparation, Offset Press Operations, and Bindery and Finishing.

**880000**

Credits: 3

**Heating, Ventilation, & Air Conditioning I (HVAC)**

Grades: 11 or 12

Prerequisite: Competitive Application Process

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.

**881000**

Credits: 3

**Heating, Ventilation, & Air Conditioning II (HVAC)**

Grades: 12 or Post-Graduate

Prerequisite: HVAC I

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 will be prepared to perform most aspects of HVAC and qualify for sponsored apprenticeship programs. Students may be eligible to take the EPA Certification Exam, the Universal R-410 A Certification Exam, any or all of the 12 HVAC Excellence Exams, and the NCCT (National Construction Career Test).

**882000**

Credits: 3

**Introduction to Health and Medical Sciences**, *weighted 0.5*

**861000** ★ **NOVA**

Grades: 10, 11, or 12 Credits: 3  
Prerequisite: Health Care Providers CPR, Current Immunization Record, Current (within last 3 months) Negative TB test

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.

**Medical Laboratory Technology I**

**861200** ★

Grades: 11 or 12 Credits: 3  
Prerequisite: Introduction to Health and Medical Sciences

This second year 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 and therapeutic laboratory procedures that support medical research and practice, and investigate safety, quality assurance, and ethical concerns associated with the field of medical laboratory technology. Students have the opportunity to shadow in a professional setting as well as participate in organized field experiences. The opportunity exists for students to receive dual enrolled college credits for specific units of study.

**Medical Laboratory Technology II**

**861700** ★

Grade: 12 or Post Graduate Credits: 3  
Prerequisite: Medical Laboratory Technology I

Students will 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. Competency 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.

**Masonry**

**898007**

Grades: 11 or 12 Credits: 3  
Prerequisite: Competitive Application Process

Masonry is a two-year program that 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 will obtain an OSHA-10 certificate.

**Advanced Masonry**

**898008**

Grades: 12 or Post-Graduate Credits: 3  
Prerequisite: Masonry I

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.

Upon successful completion of this course, students are prepared to perform all aspects of masonry and qualify for sponsored apprenticeship programs.

**Nail Design Technology**

**891000**

Grades: 11 or 12 Credits: 3  
Prerequisite: Competitive Application Process

This one-year program is available to seniors and juniors who wish to become licensed nail technicians.

Topics include health and safety issues, knowledge and chemistry of products, hand and foot anatomy, nail structure, diseases of the hands and feet, and career opportunities.

Students learn basic and advanced skills in manicuring, pedicuring, hand and foot massage, nail tips, sculptured nails, nail wraps, nail art, and gel procedures.

The curriculum also emphasizes salon management and ownership, marketing strategies, and job attainment competencies.

In order to take the State Board Licensing Examination for Nail Technicians, a student must successfully pass the program and complete a required number of nail performances in the lab.

Regular attendance is essential.

Students are expected to sit for the State Board Examination which is required in order to obtain employment in the field.

**Pharmacy Technology I**

**861300** ★

Grades: 11-12 Credits: 3  
Prerequisite: Introduction to Health and Medical Sciences

This second-year curriculum is designed to prepare students to become credentialed Pharmacy Technicians that will assist a Pharmacist in a professional retail, doctor's office, or hospital setting. Topics of study include technician duties; dosage forms; prescription containers and closures; generic substitution; information on prescription stock bottle labels; controlled substances; prescribers; receiving prescriptions, interpreting directions for use; calculations; patient interaction; federal privacy requirements; the dispensing process; alternate drug delivery

systems; sterile product compounding. Students have the opportunity to shadow in a professional setting as well as participate in organized field experiences.

*Criteria for admission may be based on a pre-assessment for program placement. Upon initial acceptance the student must undergo or obtain specific immunizations, medical clearance, CPR certification, and a criminal background check for final acceptance into the program.*

### Pharmacy Technology II

**862300** ★  
Credits: 3

Grades: 12 or Post-graduate  
Prerequisite: Pharmacy Technology I

This third 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. 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. Emphasis is placed on clinical field experiences and/or coordinated work-experiences.

### Practical Nursing (PN) I/ Certified Nurse Aide (CNA)

**888000** ★  
Credits: 3

Grades: 11 or 12  
Prerequisite: Introduction to Health & Medical Sciences, Algebra, Biology, TEAS (Test for Essential Academic Skills). Chemistry highly recommended.

Licensed Practical Nursing I is the first year of a two-year practical nursing program that is accredited by the Virginia Board of Nursing. After successful completion of PN I the student will be admitted to PN II. After successful completion of both years the graduate will be eligible to take the NCLEX-PN licensing exam and upon passing will be able to work as a Licensed Practical Nurse (LPN). The PN I students will also be eligible to take the Certified Nurse Aide exam after successful completion of PN I.

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.

Rising juniors, seniors and qualified adults who meet admission requirements are eligible to apply. It is a competitive application process. Criteria for admission include a satisfactory score on the TEAS (Test for Essential Academic Skills), satisfactory attendance, three references, and high school grades or diploma. A high school GPA of at least 2.0 is required. All students must be able to provide their own transportation to clinical experiences. Upon initial acceptance the student must undergo or obtain specific immunizations, medical clearance, CPR certification, and criminal background checks. Most requirements must be met by the first day of the school year for final placement. The Virginia Board of Nursing requires a social security number to take the licensing exam to become a licensed practical nurse.

Applications to the school of Practical Nursing are accepted January 1st to March 31st of each school year. Applicants must call the Practical Nursing secretary at 571-252-2082 after January

2nd to schedule a TEAS test date. There is a fee for this test that is due on the day of the test. For a Nursing program application and more information, please visit the Practical Nursing site, under "Programs" at [www.lcps.org/mtc](http://www.lcps.org/mtc).

### Practical Nursing II

**889000** ★  
Credits: 3

Grades: Grade 12 or Post-graduate  
Prerequisite: Practical Nursing (PN) I

Practical Nursing II is the second year of a two-year practical nursing program that is accredited by the Virginia Board of Nursing. After successful completion of PN I the student will be admitted to PN II. After successful completion of both years the graduate will be eligible to take the NCLEX-PN licensing exam and upon passing will be able to work as a Licensed Practical Nurse (LPN). The LPN works in all healthcare settings under the direction of a medical doctor or a registered nurse. The job outlook for the LPN is strong and in demand. LPNs often continue their education to become a Registered Nurse (RN) or similar health care provider.

Class units taught are medical and surgical nursing, psychiatric nursing, obstetrical and neonatal nursing, pediatric nursing, advanced nursing skills and professional issues. The students have a rigorous schedule of 16 hours a week of classroom instruction and 16 hours a week of clinical experiences. During clinical time the students give direct patient care under the supervision of the clinical instructors. Clinical experiences are at a hospital and at doctor's offices. All students must provide their own transportation daily to all clinical sites and to the school. Background checks and medical clearance are required prior to the start of clinical rotations. For more information please visit the Practical Nursing web page, under "Programs" at [www.lcps.org/mtc](http://www.lcps.org/mtc).

### Radiology Technology I, weighted 0.5

**861400** ★ **NOVA**  
Credits: 3

Grades: 11 and 12  
Prerequisite: Introduction to Health and Medical Sciences

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 will be required of them as an allied healthcare worker. The student develops an understanding of the radiographer as a central member of the health care team and an invaluable assistant to the radiologist.

The student expands the medical terminology acquired in Health & Medical Sciences as it relates to radiology. This second year curriculum is designed to prepare the student to understand the anatomy and physiology assessed in diagnostic images of the human body through the safe application of ionizing radiation.

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 will have the opportunity to shadow in professional settings.

Understanding of the material is developed through the use of lectures, group discussions, collaborative games and projects, coloring activities, review of actual radiographic examinations, and visits to imaging facilities.

**Radiology Technology II**

Grades: 12 or Post-graduate

Prerequisite: Radiology Technology I

**861500** ★  
Credits: 3

Radiology II is intended for post-graduate students who are continuing their studies to prepare for acceptance into a JRCERT accredited training program. This course content will be developed through extensive independent study projects and regular forum meetings. The course content is delivered via the Loudoun Vision course management system. Students assist with radiology labs twice monthly. Finally, it is anticipated that students will 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 will 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 pharmacologics during imaging procedures, use of sterile techniques, and evaluation of medical emergencies.

**Television Production I/Digital Moviemaking I**

Grades: 11 or 12

Prerequisite: Competitive Application Process

**893000**  
Credits: 3

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 are all a part of the first year of Television Production/Digital Moviemaking. The program is designed to have students complete the full competencies listed by the Virginia Career and Technical Education standards and to prepare students to obtain jobs in the video production industry.

Students use a wide range of professional equipment and produce projects that are viewed by the public. Students receive hands-on training with computer effects, computer editing, professional camera equipment, and audio production. This two-year program works well for students planning to attend college and/or for those intending to begin careers right out of high school. There are entry-level jobs in this field for motivated individuals with strong high school/college academic skills and technical expertise.

**Television Production II/Digital Moviemaking II**

Grades: 12 or Post-Graduate

Prerequisite: Television Production I

**894000**  
Credits: 3

The second year offers students more advanced editing opportunities and more complex productions. Special productions will be created in a team setting as well as individually. Much of the production is in real world settings, for clients who wish public viewing of completed projects. Students use a wide range of professional equipment and produce projects that are viewed by the public. Students receive hands-on training with advanced computer effects, advanced computer editing, professional camera equipment, and complex audio production.

Students are encouraged to begin the program as juniors; however, if qualified, they may complete the second year as post-graduates.

**Veterinary Science**

Grades: 11 or 12

Prerequisite: Competitive Application Process

**885400**  
Credits: 3

This one-year 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 and will frequently travel to off campus sites. Students will be actively involved in the FFA.

Places to visit include M.A.R.E. Center, Cornwall Medical Lab, and the Marion DuPont Equine Hospital.

**Welding I**

Grades: 11 or 12

Prerequisite: Competitive Application Process

**896000**  
Credits: 3

This two-year 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.

Instructional topics include Shielded Metal Arc welding Plate in all position and Pipe and GMAW all position. Class activities provide instruction in art and ornamental welding, preparation for the American Welding Society Test, and construction and repair of metal projects. AWS testing is at the student's expense.

**Welding II**

Grades: 12 or Post-Graduate

Prerequisite: Welding I

**897000**  
Credits: 3

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 American Welding Society's Limited and Unlimited Welding Thickness Test. Welding certification options are available. Advanced work on the MIG and TIG processes will be included.

Upon successful completion of this course, students will be prepared to perform many aspects of welding and qualify for sponsored apprenticeship programs.

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COURSE #	COURSE	CREDIT	GRADE	PREREQUISITES	PAGE
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241000	Art II	1	10-12	Art I	16
242000	Art III	1	11-12	Art II	16
243000	Art IV	1	12	Art III	16
249100	Studio Art—Advanced Placement	1	12	Art III	16
247700	Art/Architecture I	0.5	9-12	none	16
248700	Art/Architecture II	0.5	9-12	none	16
231700	Drawing and Painting	0.5	10-12	Art I	17
245700	Photography	0.5	10-12	Art I	17
244700	Sculpture	0.5	10-12	Art I	17
<b>BUSINESS &amp; INFORMATION TECHNOLOGY</b>					
821000	Introduction to Business & Marketing	1	9-11	none	17
826000	Keyboarding	0.5	9-12	none	17
829700	Advanced Keyboarding	0.5	9-12	Keyboarding or Keyboard Proficiency	17
828001	Computer Information Systems	1	10-12	Keyboarding or Keyboard Proficiency	17
828002	Advanced Computer Information Systems	1	11-12	Computer Information Systems	18
839001	Desktop/Multimedia Presentations	1	10-12	Keyboarding or Keyboard Proficiency	18
839002	Advanced Desktop/Multimedia Presentations	1	11-12	Desktop/Multimedia Presentations	18
830000	Accounting	1	10-12	none	18
831000	Advanced Accounting	1	11-12	Accounting	18
820700	Leadership Development	0.5/1	9-12	none	18
834000	Cooperative Office Education	1	11-12	Screening Conference	18
835700	Business Law	0.5	10-12	none	18
836700	Business Management	0.5	10-12	none	19
<b>ENGLISH &amp; ENGLISH ELECTIVES</b>					
140200	English 9— <i>Honors</i>	1	9	English 8	19
140300	English 9— <i>Academic</i>	1	9	English 8	19
140400	English 9	1	9	English 8	19
150200	English 10— <i>Honors</i>	1	10	English 9	19
150300	English 10— <i>Academic</i>	1	10	English 9	19
150400	English 10	1	10	English 9	19
160200	English 11— <i>Honors</i>	1	11	English 10	19
160300	English 11— <i>Academic</i>	1	11	English 10	19
160400	English 11	1	11	English 10	19
170100	Literature & Composition—Advanced Placement	1	12	English 11	20
160100	Language & Composition—Advanced Placement	1	12	English 10, Co-requisite: English 11	20
170300	English 12— <i>Academic</i>	1	12	English 11	20
170400	English 12	1	12	English 11	20
160700	Creative Writing	0.5	11-12	none	20
160702	Fundamentals of Writing	0.5	9-12	none	20
181700	Advanced Composition	0.5	11-12	none	20
182700	World Literature	0.5	11-12	none	20
185700	Etymology	0.5	10-12	none	21
192000	21 <sup>st</sup> Century Literacy Strategies I	1	9-12	none	21
192700	21 <sup>st</sup> Century Literacy Strategies I	0.5	9-12	none	21
193000	21 <sup>st</sup> Century Literacy Strategies II	1	10-12	21 <sup>st</sup> Century Literacy Strategies I	21
193700	21 <sup>st</sup> Century Literacy Strategies II	0.5	10-12	21 <sup>st</sup> Century Literacy Strategies I	21
250000	Theater Arts I	1	9-12	none	21
251000	Theater Arts II	1	10-12	Drama I/Theater Arts I	21
252000	Theater Arts III	1	11-12	Drama II/Theater Arts II	21
253000	Theater Arts IV	1	12	Drama III/Theater Arts III	21
254000	Technical Theater I	1	10-12	Theater Arts I	21
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187000	Journalism	1	9-12	none	22
188000	Newspaper Journalism I	1	10-12	Journalism and/or Instructor's Approval	22
188002	Newspaper Journalism II	1	11-12	Newspaper Journalism I	22
188003	Newspaper Journalism III	1	12	Newspaper Journalism II	22
189001	Photojournalism I	1	10-12	Journalism and/or Instructor's Approval	22
189002	Photojournalism II	1	11-12	Photojournalism I	22
189003	Photojournalism III	1	12	Photojournalism II	22
194700	Public Speaking	0.5	10-12	none	22

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394010	English as a World Language I	1	9-12	ACCESS Testing and Placement by ELL Dept.	23
395010	English as a World Language II	1	9-12	placement test or ELL I	23
197010	Advanced Language Learners	1	9-12	placement test or ELL II	23
190011	ELL Reading I	1	9-12	none	23
190012	ELL Reading II	1	9-12	placement test or ELL Reading I	24
190013	ELL Reading III	1	9-12	placement test or ELL Reading II	24
588010	ELL Math	1	9-12	none	24
650310	ELL Science Concepts I	1	9-12	none	24
650410	ELL Science Concepts II	1	9-12	ELL Science Concepts	24
770010	ELL Social Science Concepts I	1	9-12	none	24
770011	ELL Social Science Concepts II	1	9-12	placement test or ELL Soc. Sci. Concepts I	24
145010	ELL Writing in Content Areas	1	9-12	none	24
190015	ELL Advanced Writing in Content Areas	1	9-12	none	24
GW-190111	Gateway ELL Developmental Reading I	1	9-12	Ages 18-20	25
GW-190112	Gateway ELL Developmental Reading II	1	9-12	Ages 18-20	25
GW-190113	Gateway ELL Developmental Reading III	1	9-12	Ages 18-20	25
GW-145110	Gateway-ELL Writing in Content Areas	1	9-12	Ages 18-20	25
GW-190115	Gateway-ELL Advanced Writing in Content Areas	1	9-12	Ages 18-20	25
GW-588110	Gateway Fast Math	1	9-12	Ages 18-20	25
GW-770110	Gateway-ELL Social Science Concepts I	1	9-12	Ages 18-20	25
GW-770111	Gateway-ELL Social Science Concepts II	1	9-12	Ages 18-20	25
GW-685110	Gateway-ELL Science Concepts I	1	9-12	Ages 18-20	25
GW-685210	Gateway-ELL Science Concepts II	1	9-12	Ages 18-20	25
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844001	Early Childhood Education I	1	10-12	none but 2 classes recommended, TB Test	26
845002	Early Childhood Education II	1	11-12	Early Childhood Education I, TB Test	26
846700	Fashion Design & Merchandising	0.5	9-12	none	26
845700	Gourmet Foods	0.5	9-12	none	26
846000	Human Development	0.5	9-12	none	26
840700	Independent Living	0.5	9-12	none	26
847700	Introduction to Housing & Interior Design	0.5	9-12	none	27
820700	Leadership Development	0.5-1	9-12	none	27
842700	Marriage and Family Dynamics	0.5	11-12	none	27
844002	Teacher Cadet Program	1	12	3.0 GPA, application process, essay, teacher recommendation, TB test	27
<b>HEALTH &amp; PHYSICAL EDUCATION</b>					
440000	Health & Physical Education 9	1	9	none	27
450000	Health & Physical Education 10	1	10	Health & PE 9	27
453000	Classroom Driver Education	0	10	Health & PE 9	27
460000	Advanced Physical Education I	1	11-12	Health & PE 10	27
460700		0.5	11-12	Health & PE 10	27
465000	Advanced Physical Education II	1	11-12	Health & PE 10	28
465700		0.5	11-12	Health & PE 10	28
<b>WORLD LANGUAGES AND CULTURES</b>					
380000	American Sign Language I	1	9-12	none	28
382000	American Sign Language II	1	10-12	American Sign Language I	28
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340000	French I	1	7-12	none	28
342000	French II	1	8-12	French I	28
343000	French III	1	9-12	French II	28
344000	French IV— <i>Honors</i>	1	10-12	French III	29
345000	French V— <i>Honors</i>	1	10-12	French IV— <i>Honors</i>	29
345100	French—Advanced Placement	1	10-12	French V— <i>Honors</i>	29
370000	German I	1	7-12	none	29
372000	German II	1	8-12	German I	29
373000	German III	1	9-12	German II	29
374000	German IV— <i>Honors</i>	1	10-12	German III	29
375000	German V— <i>Honors</i>	1	10-12	German IV— <i>Honors</i>	29
375100	German—Advanced Placement	1	10-12	German V— <i>Honors</i>	29
350000	Latin I	1	7-12	none	30
352000	Latin II	1	8-12	Latin I	30
353000	Latin III	1	9-12	Latin II	30

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355000	Latin V— <i>Honors</i>	1	10-12	Latin IV— <i>Honors</i>	30
359100	Latin—Advanced Placement	1	10-12	Latin V— <i>Honors</i>	30
321000	Mandarin Chinese I	1	9-12	none	30
331000	Mandarin Chinese II	1	10-12	Mandarin Chinese I	30
334000	Mandarin Chinese III	1	11-12	Mandarin Chinese II	30
367000	Spanish for Fluent Speakers I	1	7-12	placement test	30
367300	Spanish for Fluent Speakers II	1	7-12	Spanish for Fluent Speakers I/placement test	31
367500	Spanish for Fluent Speakers III	1	9-12	Spanish for Fluent Speakers II/placement test	31
360000	Spanish I	1	7-12	none	31
362000	Spanish II	1	8-12	Spanish I	31
363000	Spanish III	1	9-12	Spanish II	31
364000	Spanish IV— <i>Honors</i>	1	10-12	Spanish III	31
365000	Spanish V— <i>Honors</i>	1	10-12	Spanish IV— <i>Honors</i> , Spanish for Fluent Speakers III	31
365100	Spanish—Advanced Placement	1	10-12	Spanish V— <i>Honors</i> , Spanish for Fluent Speakers III	31
<b>MARKETING</b>					
821000	Introduction to Business & Marketing	1	9-11	none	32
822000	Marketing Co-Op	2	11-12	Screening Conference	32
822100	Marketing Non-Co-Op	1	11-12	Screening Conference	32
823000	Advanced Marketing Co-Op	2	12	Marketing Co-Op	32
823100	Advanced Marketing Non-Co-Op	1	12	Marketing Co-Op	32
821100	Sports, Entertainment, & Recreation Marketing	1	10-12	Introduction to Business & Marketing recommended	32
820700	Leadership Development	0.5-1	9-12	none	32
<b>MATHEMATICS</b>					
542000	Algebra I, Part 1	1	9-12	Mathematics 8	33
543000	Algebra I, Part 2 ( <i>Credited if completed with Part 1</i> )	1	9-12	Algebra I, Part 1	33
540000	Algebra I	1	9-12	Algebra I, Part 1 or Mathematics 8	34
550000	Geometry	1	9-12	Algebra I	34
565000	Functions, Algebra & Data Analysis	1	9-12	Algebra I	34
560000	Algebra II	1	9-12	Algebra I and Geometry	34
571000	Algebra II/Trigonometry	1	9-12	Algebra I and Geometry	34
597700	Statistics & Probability	0.5	10-12	Algebra II	34
599700	Discrete Mathematics	0.5	10-12	Algebra II	35
572000	Advanced Functions and Modeling	1	10-12	Algebra II	35
580000	Advanced Algebra/Precalculus	1	10-12	Algebra II	35
586000	Mathematical Analysis	1	10-12	Algebra II/Trigonometry or Advanced Algebra/Precalculus	35
593000	Computer Mathematics	1	10-12	Algebra II (Co-requisite)	35
595100	Computer Science A—Advanced Placement	1	11-12	Computer Mathematics	35
585100	Calculus AB—Advanced Placement	1	11-12	Mathematical Analysis or Advanced Algebra/Precalculus	36
586100	Calculus BC—Advanced Placement	1	11-12	Mathematical Analysis or Calculus AB—Advanced Placement	36
598100	Statistics—Advanced Placement	1	10-12	Algebra II	36
583000	Multivariable Calculus—Dual Enrollment	1	11-12	Calculus BC—Advanced Placement	36
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260000	Music Appreciation	1	9-12	none	37
262000	Music Theory/History	1	9-12	none	37
270000	Instrumental Methods	1	9-12	teacher recommendation/audition	37
272000	Performance Ensemble I	1	9-12	teacher recommendation/audition	37
274000	Performance Ensemble II	1	9-12	teacher recommendation/audition	37
275001	Beginning Orchestra	1	9-12	none	37
275002	Intermediate Orchestra	1	9-12	successful completion of LCPS middle school orchestra program, High School level Beginning Orchestra, or teacher recommendation	37
275003	Advanced Orchestra	1	9-12	successful completion of HS Intermediate level or teacher recommendation	37
275004	Artist Orchestra	1	9-12	successful completion of HS Advanced level or teacher recommendation	37
276000	Jazz Ensemble	1	9-12	teacher recommendation/audition	38
293000	Beginning Guitar	1	9-12	none	38
294000	Intermediate Guitar	1	9-12	Beginning Guitar, teacher recommendation or audition	38
295000	Advanced Guitar	1	9-12	Intermediate Guitar, teacher recommendation or audition	38
275001	Artist Level Guitar	1	9-12	successful completion of Advanced Guitar, audition and teacher recommendation	38

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280000	Mixed Chorus	1	9-12	none	39
278000	Small Vocal Ensemble	1	9-12	audition	39
282000	Advanced Chorus	1	9-12	audition	39
284000	Men's Chorus	1	9-12	audition	39
286000	Women's Chorus	1	9-12	audition	39
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848000	Naval Science I	1	9-12	none	39
849000	Naval Science II	1	10-12	Naval Science I	39
847000	Naval Science III	1	11-12	Naval Science I and II	39
845000	Naval Science IV	1	12	Naval Science I, II, and III	40
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640300	Earth Science— <i>Academic</i>	1	9-10	none	40
640500	Earth Science	1	9-10	none	41
650200	Biology— <i>Honors</i>	1	9-10	none	41
650300	Biology— <i>Academic</i>	1	10	none	41
650500	Biology	1	10	none	41
655100	Biology—Advanced Placement	1	10-12	Biology— <i>Honors or Academic</i> & Chemistry (completed or taken concurrently)	41
660000	Chemistry	1	10-12	Algebra I or Algebra I, Parts 1 & 2	41
665100	Chemistry—Advanced Placement	1	11-12	Chemistry	41
656000	Environmental Science	1	11-12	Two lab science credits	42
673000	Conceptual Physics	1	10-12	Algebra I or Algebra I, Parts 1 & 2	42
670000	Physics	1	11-12	Algebra II	42
675100	Physics C—Advanced Placement	1	12	Physics; Co-requisite: Calculus	42
670200	Geospatial Science—Dual Enrollment	1	12	none	42
670201	Geospatial Science	1	12	none	42
680000	Independent Science Research	1	12	3 lab sciences	42
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740300	World History/Geography to 1500 <i>Academic</i>	1	9	none	43
740400	World History/Geography to 1500	1	9	none	43
751000	World History/Geography—Advanced Placement	1	10-12	World History/Geography I	43
745300	World History/Geography 1500 to present <i>Academic</i>	1	10	none	43
745400	World History/Geography 1500 to present	1	10	none	43
750100	U.S. History—Advanced Placement	1	11	World History/Geography I and II or World History AP	44
750300	U.S. & Virginia History <i>Academic</i>	1	11	none	44
750400	U.S. & Virginia History	1	11	none	44
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760300	U.S. & Virginia Government <i>Academic</i>	1	12	none	44
760400	U.S. & Virginia Government	1	12	none	45
782700	Economics	0.5	10-12	none	45
741200	Survey of African History	1	11, 12		45
782000	Economics, Micro and Macro—Advanced Placement	1	11, 12		45
775000	Global Social Issues	0.5	11, 12		46
741100	Human Geography—Advanced Placement	1	11-12		46
784700	Modern International Relations	0.5	11-12		46
786700	Psychology	0.5	11-12		46
787100	Psychology—Advanced Placement	1	11-12		46
741300	The World of Ideas	0.5	11, 12		47
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080570	Career Pathways	1	10-12	none	47
591070	Personal Living and Finance	1	9-12	Mathematics 8	47
101100	Reading Workshop Strategies (Also 101200, 101300, 101400)	1	9-12	none	47
<b>TECHNOLOGY EDUCATION</b>					
810000	Aerospace Science	1	10-12	none	48
851000	Technology Education I	1	9-12	none	48
852000	Technology Education II	1	10-12	Technology Education I	48
853000	Computer Aided Drafting & Design I	1	10-12	none	48
854000	Computer Aided Drafting & Design II	1	11-12	Computer Aided Drafting & Design I	48
856000	Applied Technology I	1	9-12	none	48
857000	Applied Technology II	1	10-12	Applied Technology I	48
858000	Applied Technology III	1	11-12	Applied Technology II	48
<b>OTHER</b>					
092000	AVID 1	1	9	none	49
093000	AVID 2	1	10	none; AVID 1 recommended	49
094000	AVID 3	1	11	AVID 2	49
095000	AVID 4	1	12	AVID 3	49
825000	Personal Finance	0.5	10-12	none	49
071000	SAT Preparation	0.5	10-12	None	49
<b>LCPS ACADEMY OF SCIENCE COURSES</b>					
664900	AOS Integrated Science I	1	9	None	51
645900	AOS Integrated Science II	1	9	AOS Integrated Science I	51
654900	AOS Integrated Science III	1	10	AOS Integrated Science I & II	51
652900	AOS Biology	1	11	None	51
651900	AOS Sophomore Science Research	1	10	AOS Integrated Science I & II	51
661900	AOS Junior Science Research	1	11	None	51
671900	AOS Senior Science Research	1	12	None	51
664100	AOS Biology—Advanced Placement	1	11-12	None	52
674100	AOS Environmental Science—Advanced Placement	1	12	None	52
669100	AOS Chemistry—Advanced Placement	1	12	None	52
662100	AOS Physics—Advanced Placement	1	12	None	52
541300	AOS Analytic Geometry, Functions and Trigonometry with Transformations	1	9	None	52
562000	AOS Pre-Biosciences Analysis	1	10	None	52
562200	AOS Pre-Physical Sciences Analysis	1	10	None	52
561100	AOS AB Calculus with Statistics—Advanced Placement	1	11 & 12	None	53
571100	AOS BC Calculus with Statistics—Advanced Placement	1	11 & 12	None	53
583001	Multivariable Calculus—Dual Enrollment	1	12	None	53
583100	Multivariable Calculus	1	12	None	53

COURSE #	COURSE	CREDIT	GRADE	PREREQUISITES	PAGE
<b>MONROE TECHNOLOGY CENTER PROGRAMS</b>					
887000	Administration of Justice I	3	11-12	Competitive Application Process	53
887100	Administration of Justice II	3	12	Competitive Application Process	53
895000	Advanced Networking (CISCO Systems)	3	11 or 12	Competitive Application Process	53
867000	Auto Collision Repair Technology I	3	11 or 12	Competitive Application Process	54
868000	Auto Collision Repair Technology II	3	12	Collision Repair Technology I	54
862000	Auto Servicing Technology I	3	11 or 12	Competitive Application Process	54
863000	Auto Servicing Technology II	3	12	Auto Servicing Technology I	54
885200	Biotechnology	3	11 or 12	Biology, Competitive Application Process	54
865000	Building Construction I	3	11 or 12	Competitive Application Process	54
866000	Building Construction II	3	12	Building Construction I	55
839003	Computer & Digital Animation I	3	11 or 12	Competitive Application Process	55
839004	Computer & Digital Animation II	3	12	Computer & Digital Animation I	55
898000	Computer Integrated Engineering & Design (CIED)/ Introduction to Engineering	3	11 or 12	Competitive Application Process	55
872000	Computer Systems Technology/ Information Technology Essentials	3	11 or 12	Competitive Application Process	55
873000	Cosmetology I	3	11 or 12	Competitive Application Process	55
874000	Cosmetology II	3	12	Cosmetology I	56
875000	Culinary Arts I	3	11 or 12	Competitive Application Process	56
876000	Culinary Arts II	3	12	Culinary Arts I	56
861600	Emergency Medical Technician (EMT)	3	11 or 12	Competitive Application Process,16 years old prior to first day of class, affiliated with volunteer fire or rescue department in Loudoun County	56
885100	Environmental Plant Sciences	3	11 or 12	Competitive Application Process	57
859300	Firefighter	3	11 or 12	Competitive Application Process,16 years old prior to first day of class, affiliated with volunteer fire or rescue department in Loudoun County	57
879000	Graphic Communications I	3	11 or 12	Competitive Application Process	57
880000	Graphic Communications II	3	12	Graphic Communications I	57
881000	Heating, Ventilation, & Air Conditioning I (HVAC)	3	11 or 12	Competitive Application Process	57
882000	Heating, Ventilation, & Air Conditioning II (HVAC)	3	12	Heating, Ventilation, & Air Conditioning I	57
861000	Introduction to Health and Medical Sciences	3	10-12	Competitive Application Process	58
861200	Medical Laboratory Technology I	3	11-12	Introduction to Health and Medical Sciences	58
861700	Medical Laboratory Technology II	3	12	Laboratory Technology I	58
898007	Masonry	3	11	Competitive Application Process	58
898008	Advanced Masonry	3	12	Masonry I	58
891000	Nail Design Technology	3	11 or 12	Competitive Application Process	58
861300	Pharmacy Technology I	3	11-12	Introduction to Health and Medical Sciences	58
862300	Pharmacy Technology II	3	12	Pharmacy Technology I	59
888000	Practical Nursing (PN) I	3	11 or 12	Introduction to Health & Medical Sciences; Competitive Application Process; NET (Nurse Entrance Test) Completion; Algebra, Biology & Chemistry highly recommended	59
889000	Practical Nursing II	3	12	Licensed Practical Nursing (PN) I	59
861400	Radiology Technology I	3	11-12	Introduction to Health and Medical Sciences	59
861500	Radiology Technology II	3	12	Radiology Technology I	60
893000	Television Production I/Digital Moviemaking I	3	11 or 12	Competitive Application Process	60
894000	Television Production II/Digital Moviemaking II	3	12	Television Production I	60
885400	Veterinary Science	3	11 or 12	Competitive Application Process	60
896000	Welding I	3	11 or 12	Competitive Application Process	60
897000	Welding II	3	12	Welding I	60

**Loudoun County Public Schools**

*21000 Education Court ■ Ashburn, Virginia 20148*