



2012 - 2013 Course Guide

MORRIS COUNTY SCHOOL OF TECHNOLOGY

**400 East Main Street
Denville, NJ 07834
973-627-4600
www.mcvts.org**

MISSION STATEMENT

The Morris County Vocational School District, is to provide vocational and enrichment programs that inspire and prepare students to succeed in today's world and pursue tomorrow's opportunities.

AFFIRMATIVE ACTION STATEMENT

The Morris County Vocational School District declares the intent of this Affirmative Action Statement is to ensure educational equality for all our students regardless of race, ethnicity, religion, affection or sexual orientation, gender, nation of origin or disability. This includes, but is not limited to, recruitment, testing, interviewing, transferring in or out of district, grade promotion, social activities and recreational programs the District sponsors and supports.

BOARD OF EDUCATION

Ms. Barbara Dawson, President
Honorable Reginald B. Stanton, Vice-President
Mr. Lawrence J. Colasurdo
Mr. John P. Hyland
Dr. Kathleen Serafino, Executive Morris County Superintendent

ADMINISTRATION

Scott Moffitt, Superintendent/Principal
Susan Young, School Business Administrator
Athena Borzeka Director of Student Personnel Services & Special Education
Shari Castelli, Supervisor of Science, Technology and Mathematics
Miriam Faber, Supervisor of Grants & Program Management
Fred Finck, Supervisor of Vocational & Technical Careers
Mark Menadier, Supervisor of Humanities
MaryAnne E. Regan, Director of Curriculum and Instruction
Neil Torino, Director of Athletics and Student Affairs
Kenneth Williams, Director of Instructional Support Services

ACCREDITATION

Morris County Vocational School District holds national accreditation from The Middle States Commission on Secondary Schools.

COUNSELING SERVICES

CEEB Code: 310281

The mission of the counseling department is to ensure quality guidance and counseling services for each student at Morris County School of Technology. To fulfill this mission, counselors will assist students to:

- * Assess their strengths, aptitudes and interests
- * Plan their educational program
- * Develop decision-making and problem-solving skills
- * Identify their career options
- * Build a foundation for a fulfilling life

Contact Information for the Counseling Department

Main Telephone Number 973-627-4600 Ext. 230/238

Ms. Athena Borzeka	Director of Student Personnel Services	Ext. 229
Ms. Jennifer Berk	School Counselor	Ext. 205
Mrs. Gloria Davison	School Counselor	Ext. 228
Ms. Marisa Pelosi	School Counselor	Ext. 220
Mr. James Reidy	School Counselor	Ext. 221

Child Study Team Services

A fully-staffed Child Study Team (CST) serves the students of Morris County School of Technology. Athena Borzeka, Director of Student Personnel Services, supervises the interdisciplinary work of the CST, while also serving on the team. The CST is a multidisciplinary team of professionals that includes:

- a learning disabilities teacher-consultant (LDT-C), Stacy Pendergrast, Ext. 124
- a school psychologist, Robin Mutter, Ext. 203
- a school social worker, Tina Bibbo, Ext. 204

The Morris County Vocational School District will provide communication aids, auxiliary aids and services for effective communication to all secondary and post-secondary prospective and current students with hearing impairment, at no cost to the student being served in accordance with the student's individual educational plan or section 504 plan.

Members of the CST consult with classroom teachers, administrators, and parents regarding instructional methods and/or counseling necessary to meet the specific needs of individual students. CST members:

- Participate in the evaluation of students who may need special education programs and services;
- Participate in the determination of eligibility of students for special education programs and services;
- Deliver appropriate related services to students with disabilities (e.g., school-related counseling);
- Provide appropriate preventive and support services to non-disabled students;
- Provide services to the school staff regarding techniques, materials and programs for students experiencing difficulties in learning;
- Consult with school staff and parents in order to optimize learning for students; and
- Assist with designing, implementing and evaluating techniques to prevent or remediate educational difficulties.

The MCST Child Study Team's focus centers on developing creative ways to help students realize their potential in school. This focus is not to be restricted to diagnosis, labels or categories, but to look at students as individuals, and to involve students, parents and teachers in a problem-solving process leading to student success.

Morris County School of Technology
Graduation Requirements

Students who desire an Academy Endorsed Diploma will be required to acquire a minimum of 160 credits and meet all graduation requirements in accordance with New Jersey Administrative Code 6A:8-5.1.

Required Courses:

- Four years of English (20 credits)

- Four years of Health/Physical Education (20 credits)

- Three years of Mathematics (15 credits)

- Three years of Science (15 credits)

- Three years of Social Studies (15 credits)

- Two years of a World Language (10 credits)

- One year of Visual or Performing Arts (5 credits)

- One Semester of Financial Literacy (2.5 credits) beginning with the Class of 2014

- Academy Program (50 credits) beginning with the Class of 2013 including a structured learning experience*

*Defined as an internship.

In addition, students **must** demonstrate proficiency on the New Jersey High School Proficiency Assessment (HSPA) administered in the spring of the junior year and on End of Course Assessments as specified.

Four Year Course Offerings

Required	Selection
English (4 years) *Honors courses available	<ul style="list-style-type: none"> • English I* • English II* • English III* • English IV
Mathematics (3 years) *Honors courses available	<ul style="list-style-type: none"> • Algebra I* • Geometry* • Algebra II/Trigonometry* • Pre-Calculus* • Calculus* • Medical Mathematics • Probability and Statistics
Health/Physical Education (4 years)	<ul style="list-style-type: none"> • Physical Education/Health I • Physical Education/Health II • Physical Education/Health III • Physical Education/Health IV
Science (3 years) *Honors courses available	<ul style="list-style-type: none"> • Anatomy and Physiology I • Anatomy and Physiology II • Biology* • Chemistry* • Exercise Science • Integrated Physical Science • Physics* • Nutrition
Social Studies (3 years) *Honors courses available	<ul style="list-style-type: none"> • World History* • US History I* • US History II* • Economics • Global Studies
World Language (2 years)	<ul style="list-style-type: none"> • Spanish, French or Chinese I • Spanish, French or Chinese II • Spanish, French or Chinese III • Spanish or French IV
Visual or Performing Arts (1 year) Subject to availability	<ul style="list-style-type: none"> • Advertising Art and Design • Computers in Art • Creative Movement • Creative Writing • Drama • Drawing and Composition 1 • Drawing and Composition 2 • Drawing and Compensation 3 • Film Literacy • Fundamentals of Music • Laboratory Band 1 • Laboratory Band 2 • Laboratory Band 3 • Laboratory Band 4 • Music and Culture of Spanish Countries • Music History • Public Speaking
Electives (2 per year) Subject to availability	<ul style="list-style-type: none"> • Accounting • Advanced Video Game Programming • Anthology of Spanish Literature • Child Psychology • Computer Applications • Contemporary Issues in Sociology • Digital video • Early Childhood Development • English as a Second Language • Environmental Science • Exercise Science • Financial Literacy

	<ul style="list-style-type: none"> • Flexibility and Strength Training • Genetics • Global Cuisine • HSPA Prep in Mathematics • HSPA Prep in Language Arts Literacy and Writing • Human Behavior I • Human Behavior II • Integrated Physical Science • International Business Strategies • Introduction to Computer Programming and Problem Solving • Introduction to Java I • Introduction to Java II • Introduction to Video Game Programming Using C# • Laboratory Sciences • Medieval History • Resource Center Study Skills Support • SAT Preparation in English and Writing • SAT Preparation in Mathematics • Spanish Cultures and Communication • Study Skills Support • Web Design
Academy Program	<i>Career and Technical courses as per Academy Program</i>

Grade Point Average

A cumulative grade point average (GPA) is maintained on all students beginning with the freshman year based on final grades in each course. It is essential that all students recognize the importance of GPA in the college admissions process. At Morris County School of Technology, transcripts contain a student's class rank as well as his/her grade point average (GPA). In calculating GPA, the converted quality points are multiplied by the number of credits assigned to the course. The resultant course quality points are totaled and divided by the total credits attempted by the student. Thus, the following formula is used:

$$\frac{\text{Total Course Quality Points}}{\text{Total Credits Attempted}} = \text{GPA}$$

In computing rank, grades of all subjects are included. This system of determining class rank is recommended by the National Association of Secondary School Principals and approved by the Board of Education.

Grading System and Quality Points

Listed below, is the weighted Grading System Structure*:

		College courses & Honors courses	General
97-100	A+	5.3	4.3
94-96	A	5.0	4.0
90-93	A-	4.7	3.7
87-89	B+	4.3	3.3
84-86	B	4.0	3.0
80-83	B-	3.7	2.7
77-79	C+	3.3	2.3
74-76	C	3.0	2.0
70-73	C-	2.7	1.7
67-69	D+	1.3	1.3
64-66	D	1.0	1.0
60-63	D-	.7	.7
Below 60	F	0.0	0.0

**Pending board approval 3/13/12*

I = Incomplete M = Medical Exemption A = Audit	WP = Withdrawn Passing WF = Withdrawn Failing P = Passing S = Satisfactory
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Honor Roll

To be distinguished as a High Honor Roll student, one must have a numerical average of at least 91% with no grade lower than a "B+".

To be distinguished as an Honor Roll student, one must have a numerical average of 84% and have no grade lower than a "B-".

Valedictorian – Salutatorian

Valedictorian and Salutatorian will be determined based on a total cumulative average at the conclusion of the sixth semester at the end of their Junior year. The student(s) with the highest academic average will be declared the valedictorian(s) for the class. The second highest academically averaged student(s) will be declared the salutatorian for the class. In the event of a tie for the highest cumulative average, the student who has elected the most credits in the highest level courses will be declared the valedictorian. To be declared the valedictorian or the salutatorian, the student must have completed the required number of credits for graduation in mainstreamed courses and be in residence either on the Denville campus or at County College of Morris for the entire senior year.

Entrance Requirements for Honors Programs

Honors Courses are available in specific courses: English, Social Studies, Mathematics and Science. These courses offer enrichment in the scope of material presented, in the depth of exploration and in the expectation of student performance. To enter an Honors level course, the student must complete the Honors Program Application. Honors level placement is determined by previous academic performance, standardized test scores, student questionnaire and teacher recommendation. The Honors Program Application is available on the website beginning in February of each school year.

Students' Rights and Responsibilities in the Honors Program

- If it becomes evident that a student is unable to achieve at least a "C" average, as evidenced by marking period or midyear exam grade, the placement will be reviewed. If the recommendation is that the student be reassigned to the regular academic program, a conference with the student parent, teacher and school counselor will be scheduled. Decisions regarding reassignment will be made on a case by case basis.
- Students receiving a final grade of "C" or lower will automatically lose the opportunity to continue in the Honors program within that discipline during the next school year.

Challenger Program Grade 12 College Options

The Challenger program and Grade 12 Initiative Program afford seniors the opportunity to take college courses at the County College of Morris. The following criteria must be met by your child to be eligible to attend County College of Morris:

1. Complete the 11th grade with an **overall** GPA of 3.0 or better.
2. Pass all portions of the HSPA given in March, 2012.
3. Achieve **one** of the following:
 - a. An SAT score of at least 540 in Verbal **and** 530 in Math, **or**
 - b. A score of 23 or better on the ACT English **and** Math portions, **or**
 - c. Successfully pass the Accuplacer test given by County College of Morris
 - d. **Students who do not successfully clear for all academic courses may be considered individually to take only their occupational course at the college dependent upon the academic requirements of the coursework and subject to the approval of the college**
4. Complete the County College of Morris Challenger application.

To meet admission requirements, students must also meet the Guidelines for Pre-College Students as outlined by the respective college.

OPTION II: Expanded Opportunities for Fulfilling High School Graduation Requirements

Option II establishes alternate pathways for students of the Morris County Vocational School District to satisfy requirements for high school graduation and meet the New Jersey Core Curriculum Content Standards in accordance with the New Jersey Administrative Code (N.J.A.C. 6A:8-5.1(a)1ii).

The purpose of Option II is to provide educational experiences that are meaningful and relevant and that provide students with opportunities to explore and achieve at high levels. In order to maximize student achievement and meet diverse pathways for learning, Option II permits students to employ alternative learning experiences that are stimulating and intellectually challenging and that enable students to fulfill or exceed the expectations set forth in the Core Curriculum Content Standards.

Option II may include but is not limited to one or more of the following alternatives: student exchange programs, interdisciplinary or theme-based programs, independent study, internships, community service, accredited college coursework, meaningful research and structured learning experiences.

Option II alternatives requested by eligible students must meet or exceed the proficiencies established by the New Jersey Core Curriculum Content Standards, receive prior approval by the principal and/or the Option II Review Committee and demonstrate satisfactory performance as measured by district-approved competency assessment instruments in order for credit to be awarded.

Grade 12 Structured Learning Experience

Each student is to complete a structured learning experience such as an internship (paid or unpaid). A structured learning experience allows students to explore advanced professional skills in their chosen area by working closely with industry professionals in the field.

Students are to complete a structured learning experience that encompasses a minimum of 160 work hours to equal 10 credits. Up to one half of these hours may be completed during the summer months pending the structured learning experience coordinator and School Board approval.

Service learning experience may be substituted on a case by case basis.

COURSE DESCRIPTIONS

ENGLISH

English I

This course is structured as a “survey” that introduces students to the various units of study that they will be required to examine, analyze, and understand during their years of high school. Through the use of specific pieces of text, students will learn the “basics” of Language Arts, including elements of reading, writing, speaking, listening, language, and research. Students will develop basic Language Arts Skills, as well as the ability to think critically, and articulate thoughts coherently in both written and verbal formats.

English I – Honors

This course is structured as a “survey” that introduces students to the various units of study that they will be required to examine, analyze, and understand during their years of high school. Through the use of specific pieces of text, students will learn the “basics” of Language Arts, including elements of reading, writing, speaking, listening, language, and research. Students will develop basic Language Arts Skills, as well as the ability to think critically, and articulate thoughts coherently in both written and verbal formats.

English II

Sophomore English students will study a selection of classic novels, Shakespearean drama, non-fiction, and poetry. The overarching theme of this year asks students to examine the relationship between themselves and society. In order to become a truly engaged member of our MCST learning community and beyond, it is important that each student develop and appreciation for informed citizenship and grapples with the intricacies of group dynamics. Therefore, particular emphasis is placed on developing research skills, analyzing/implementing rhetorical and persuasive strategies, and actively participating in various group discussion formats.

English II – Honors

This course provides the tenth grade honors level student with opportunities to engage in in-depth critical analyses of cultural and social norms through various media formats. In addition to British, American and global literature, contemporary essays, along with a variety of technological resources, elucidate the dominant theme of Self and Society. This course emphasizes the informed use of language in speech, writing, and various technological formats and culminates in a research project.

English III

All students study American literary classics, they will have the opportunity to reflect on and develop their own aspirations. This course is designed to take the eleventh grade students on a journey analyzing the American Dream, developing and understanding the nature of self-reliance, grappling with the ideas of perception and reality, and finally looking at the past and present to help define the future. Students will read many fiction and non-fiction works, continue to develop their persuasive writing and speaking skills, enhance their research skills, and take the next step in preparing for their senior experience.

English III – Honors

This course provides eleventh grade honor students an in-depth study of American literary classics. They will have the opportunity to reflect on and develop their own aspirations, analyze the American Dream, develop and understand the nature of self-reliance, grapple with the ideas of perception and reality, and finally look to the past and present to help define the future. Students will read many fiction and non-fiction works, continue to develop their persuasive writing and speaking skills, enhance their research skills, and take the next steps in preparing for their senior experience.

English IV

As the culminating year in a four year course of study, English IV provides students with opportunities to practice the critical thinking, reading, and writing skills they have been developing and honing during their years of secondary education. With an emphasis on the skills students will need to be successful as they continue their education and/or enter the workforce, English IV presents a variety of reading, writing, and discussion activities and projects for continued practice and development of skills, while simultaneously providing opportunities for students to think metacognitively about what it truly means to be deeply, thoughtfully, and critically engaged with the world as students, workers, and community members.

English IV – Honors

As the culminating year in a four year course of study, English IV Honors provides students with ample and varied opportunities to demonstrate the critical thinking, reading, and writing skills they have been developing and honing during their years of secondary education. Whereas both English IV and English IV Honors emphasize the skills students will need to be successful as they continue their education and/or enter the workforce, by offering a variety of reading, writing, discussion activities and projects for continued practice and development of skills while simultaneously providing opportunities for students to think metacognitively about what it truly means to be deeply, thoughtfully, and critically engaged with the world as students, workers, and community members, English IV Honors

requires students to engage more deeply and broadly. Accordingly, the course encompasses a wide body of sophisticated texts which require students to perform more sophisticated critical analyses, and it asks students to respond effectively and comprehensively through writing and discussion to complex issues and areas of inquiry.

HSPA Preparation English and Writing (9-10)

This course is required for all students who achieve below the state minimum level of proficiency. This class is designed for those students in grades 9 or 10 who have not yet taken the HSPA and have scored below the minimum level of proficiency on the administered standardized test or GEPA. The course curriculum prepares students in areas such as grammar, sentence structure, punctuation, comprehension and writing as well as in test taking skills.

English as a Second Language (9-12)

English as a Second Language is designed to meet the needs of the non-native speakers of English in our community. The curriculum and texts vary with the needs of the population served in any year. The course provides individual instruction in reading, writing and speaking American English.

MATHEMATICS

Algebra I (9)

Algebra I is a college preparation level mathematics course. This course blends an understanding of algebraic basic concepts and principles with applications. Each unit is devoted to the study of an important algebraic concept and how it can be applied in the workplace. Emphasis is placed on data and patterns, real number operations, variables, linear equations and inequalities, operations with polynomials, functions and formulas as tools for problem solving. Translation, interpretation and analysis of problem solving situations are integrated throughout the course. The scientific and graphing calculator is used as both problem-solving and learning tools.

Algebra I – Honors (9)

This course follows a logical spiral development with techniques of problem-solving interwoven with algebraic manipulations as they arise. Deductive reasoning is emphasized. Topics include operations and properties of real numbers, algebraic problem-solving, solving of linear, quadratic, fractional and simultaneous equations; operations on polynomial expressions; polynomial factoring; rational expressions; inequalities; and graphing and radicals.

Geometry (9-10)

(Prerequisite: Algebra I)

This course aids the student in understanding the basic structure of geometry and developing the powers of spatial visualization while gaining knowledge of the methods of how geometry and algebra complement each other. Topics include congruence, parallelism, perpendicularity, similarity, areas and perimeter, fundamental definitions, postulates, theorems, parallelism, and graphing and proofs. The course integrates plane geometry with arithmetic, algebra and numerical trigonometry.

Geometry – Honors (9-10)

(Prerequisite: Algebra I)

The course introduces the student to the idea of a mathematical system through work with problems and proofs involving postulates and theorems and through work in logic and problem-solving. Students completing this course will demonstrate knowledge and understanding of the following areas: basic geometric objects in the plane; deductive reasoning; parallel lines and planes; congruent triangles, quadrilaterals, inequalities in geometry; similar polygons; right triangles; circles; areas of plane figures, areas and volumes of solids and coordinate geometry.

Algebra II/Trigonometry (10-11)

(Prerequisite: Algebra I and Geometry)

Topics include sequences of real numbers, linear functions and relations, polynomials and rational algebraic expressions, irrational numbers and quadratic equations, polynomial functions, exponential and logarithmic functions and quadratic relations. The student is helped to understand algebra as the study of the structure of real and complex numbers and to recognize the techniques of algebra as reflections of the structure.

Algebra II/Trigonometry – Honors (10-11)

(Prerequisite: Algebra I and Geometry)

This course is designed for students who have demonstrated proficiency in Algebra I-Honors and Geometry-Honors and who continue to qualify for placement in honors classes. Through rigorous problem-solving exercises, the student will acquire competencies in algebraic and trigonometric techniques, become prepared for Pre-Calculus and see the connections among algebra, geometry and trigonometry. Topics include real number system, operations over real and complex numbers, solutions of equations and inequalities including polynomials, absolute value and rational functions, solutions of quadratic and cubic equations, graphs of functions and relations including the conic sections, solutions of systems of equations and trigonometric functions, evaluations of trigonometric and logarithmic expressions and matrices and determinants.

Pre-Calculus (11-12)

(Prerequisite: Algebra II/Trigonometry)

This course is suitable for students who have demonstrated proficiency in Algebra II/Trigonometry. Topics include relations and functions, transformations, trigonometry, vectors and parametric equations, polar coordinates and complex numbers, conics and exponents and logarithms. Students will investigate the limits of functions and use limits to determine rates of change. Students will also explore topics in discrete mathematics including iteration and fractals.

Pre-Calculus Honors (11-12)

(Prerequisite: Algebra II/Trigonometry)

This course is suitable for students who have completed Algebra II/Trigonometry Honors. A strong background in linear, quadratic and trigonometric functions is required. Students will explore transformations, composition and continuity of functions, and will study in depth the characteristics of polynomial and rational functions. Students will build on previous knowledge of trigonometric functions, and use these functions to model real world data. Vectors, parametric equations, and conic sections will be introduced. Graphing skills will be extended from the Cartesian plane to the polar and complex planes. Fractals in the complex plane will be investigated. Exponents and logarithms will be reviewed briefly. The study of sequences and series will lead to a discussion of limits. The course will conclude with an introduction to Calculus, including derivatives and integrals.

Calculus (12)

(Prerequisites: Algebra I, Geometry, and Algebra II/Trigonometry)

Topics include a review of basic algebraic skills involving the Cartesian Coordinate System, polynomials, functions, radicals, operations on rational expressions, exponents and trigonometry, formally differentiating algebraic and transcendental functions, using differentiation to solve real life problems, integrating and transcendental functions both indefinitely and definitely.

Calculus – Honors (12)

(Prerequisite: Algebra I, Geometry, and Algebra II/Trigonometry)

Students completing this highly advanced mathematics course will develop skills in Calculus and its applications in Mathematics, Science and Engineering. Topics include a review of basic algebraic skills involving the Cartesian Coordinate System, polynomials, functions, radicals, operations on rational expressions, exponents and trigonometry, formally differentiating algebraic and transcendental functions, using differentiation to solve real life problems, integrating algebraic and transcendental functions both indefinitely and definitely.

Medical Mathematic – 2.5 credits (11)

(Health Care Science Majors Only)

This course will provide a review of basic mathematical calculations and will instruct the student on how to convert equivalents from one system to another and accurately mix and measure drugs. Emphasis will be placed on how these techniques are used in the administration of medication for patient use. The goal is to provide the student with the necessary mathematical background needed for pharmacology. Students will take a comprehensive examination prepared by University of Medicine & Dentistry of New Jersey upon completion of the course and, if successful, earn three college credits from UMDNJ.

Probability and Statistics (12)

This is an advanced math course for students who have completed Algebra II. Students will collect, analyze and display data, and will use statistical methods to solve real-world problems. Students will design surveys and experiments, use probability to understand random behavior, and make inferences about a population by analyzing a sample of the population. Students will evaluate statistics in the media. Graphing calculators and statistical software will be utilized to explore data.

HSPA Preparation Mathematics (9-10)

This course is required for all students who achieve below the state minimum level of proficiency. The class is designed for those students in grades 9 or 10 who have not yet taken the HSPA and have scored below the minimum level of proficiency on the administered standardized test or GEPA. The course curriculum prepares students in areas covered by the HSPA as well as in test taking skills.

PHYSICAL EDUCATION/HEALTH and WELLNESS

Physical Education and Health I

(Includes Mental Health, Wellness, Family Life Education, HIV, and Drug and Alcohol Abuse)

This course is designed to enhance the physical, mental, emotional and social well-being of the student. A scientific approach highlighting exercise physiology is the foundation of student learning. Integration of kinesiology and principles of anatomy and physiology heighten students' understanding of how the body relates to exercise and the science of human performance. Students will understand and consistently demonstrate the components of physical fitness: cardiovascular endurance, muscular strength, muscular endurance, flexibility and body composition. Activities, which incorporate these components and enable students to meet their personal fitness needs, are emphasized.

Physical Education and Health II

(Includes Safety and Driver Education Theory)

This course is designed to enhance the physical, mental, emotional and social well-being of the student. A scientific approach highlighting exercise physiology is the foundation of student learning. Integration of kinesiology and principles of anatomy and physiology heighten students' understanding of how the body relates to exercise and the science of human performance. Students will understand and consistently demonstrate the components of physical fitness: cardiovascular endurance, muscular strength, muscular endurance, flexibility and body composition. Activities, which incorporate these components and enable students to meet their personal fitness needs, are emphasized.

Physical Education and Health III

(Includes First Aid, CPR, Death and Dying)

This course is designed to enhance the physical, mental, emotional and social well-being of the student. A scientific approach highlighting exercise physiology is the foundation of student learning. Integration of kinesiology and principles of anatomy and physiology heighten students' understanding of how the body relates to exercise and the science of human performance. Students will understand and consistently demonstrate the components of physical fitness: cardiovascular endurance, muscular strength, muscular endurance, flexibility and body composition. Activities, which incorporate these components and enable students to meet their personal fitness needs, are emphasized.

Physical Education and Health IV

(Includes Family Life Education and Interpersonal Relationships)

This course seeks to provide students with an understanding of the physical, emotional and social aspects of human relationships and sexuality and how they support a healthy, active lifestyle. Students will learn how to develop and maintain relationships with friends and family. Additionally, students learn medically accurate information about abstinence and contraception and learn skills to enact behaviors to reduce or eliminate the occurrence of sexually-transmitted diseases, HIV/AIDS and unintended pregnancy.

Any student whose parent/guardian presents to the school principal a signed statement that any part of instruction in family life is in conflict with their personal, religious or moral convictions shall be excused from that portion of the course where such instruction is given. The student shall not be penalized by loss of credit or denial of a diploma otherwise earned. In such instances where the parent/guardian has requested removal of their child from a portion of the family life instruction, the teacher shall provide an alternate assignment of equal weight and value.

****Dance students will meet the Physical Education/Health requirement through their occupational course. Drivers Education theory is therefore not offered to Dance students.**

SCIENCE

Anatomy and Physiology I (11-12)

This is a laboratory oriented course designed for students who are involved in Health Care Sciences. It consists of the study of the human body and the related areas of health and disease. Laboratory work is a major component of the course and students will perform various physiological experiments that include the dissection of a representative animal for human anatomy, blood count, urine analysis, hearing and visual perception, computerized EKG and EEG and biofeedback. *This course will provide the student an opportunity to earn four college credits as a full laboratory science from University of Medicine & Dentistry of New Jersey.*

Anatomy and Physiology II (11-12)

(Prerequisite: Anatomy and Physiology I)

This one-year laboratory science course is designed to provide the students with knowledge and appreciation of the anatomy and physiology of the human body. The content covered will provide the scientific foundation for the students who are interested in health, wellness and their integration with human physiology. Anatomy & Physiology II is the study of the major life systems in the human body. The focus is to integrate each function to demonstrate the total function of the human body as a living machine. Beginning with the cardiovascular system and its unique linkage to the respiratory system, the student will follow each metabolic pathway, incorporating those physiology principles to the concept of the whole human machine. Labs will include dissection of a sheep heart and a fetal pig, slides and studies of metabolic function in health and malfunctions resulting in disease. *This course will provide the student an opportunity to earn four college credits as a full laboratory science from University of Medicine & Dentistry of New Jersey.*

Biology (9)

This course is designed to give students an introduction to life in all its forms. The major biological topics studied are: ecology, human biology, cellular biology, biochemistry, taxonomy, diversity, systemics, genetics, Theory of Evolution, microorganisms, plants, invertebrates and vertebrates. The course will include observation and experimentation done in a laboratory.

Biology – Honors (9)

This biology course is designed to introduce the student to the major concepts in biological sciences. Through laboratory exercises and investigation into current biological topics, students will explore the relationship between biological theory and the world around them. The student will be able to apply the concepts to everyday life and gain a further understanding of the issues in the life science discipline. Topics include ecology and environmental biology, biochemistry, cellular and molecular biology, genetics and evolution. Laboratory activities are designed to reinforce the scientific process and incorporate the pervasive standard of writing in research reports.

Chemistry (10)

This course is designed to acquaint the student with the fundamentals of chemistry through experimentation, demonstration, discussion and reading. Laboratory experience is an integral part of the course. Emphasis is on quantitative skills in treating experimental data. Symbolism, theory and mathematical implications of the theory of matter and the changes in its composition are discussed. Topics include the study of matter and energy, atomic theory and structure, reactions, chemical bonds, the nature of gases, liquids and solids, nuclear energy and radioactivity. Students are also introduced to the underlying societal issues that involve chemistry such as water needs, chemical resources, petroleum and foods.

Chemistry – Honors (10)

(Prerequisite: Algebra I)

This course is designed for motivated students with a high interest in science and who meet the qualifications for placement in an Honors program. Students should have completed Algebra I prior to enrolling in this course. Chemistry is the study of matter and the changes that it undergoes. The course will cover matter and energy as well as the mathematical implications of the theory of matter and energy. Other topics include atomic structure and theory, chemical reactions, bonding theory and molecular geometry, stoichiometry, states of matter, the nature and property of gases, radioactivity, nuclear reactions and equilibrium. The laboratory experience, student inquiry and mathematical applications are an integral part of this course as well as individual and group research.

Exercise Science (12)

(Prerequisite: Biology or Honors Biology AND Chemistry, Honors Chemistry or a full year of Integrated Physical Science)

This course is a **semester** elective. It is designed to develop student's understanding of physiology of exercise. Students will be able to apply the knowledge gained to their own individual lives. Physiological concepts will be enforced through practical application. In addition, students will be expected to keep a personal log throughout the course to monitor and reflect on their fitness progression. Topics covered include functional anatomy, muscle and cardiovascular physiology, nutrition, fitness assessments, and training. Upon completion of this course, students will have one year to pass an exam for personal trainer certification through the National Council of Strength and Fitness.

Integrated Physical Science (10-12)

This is an individualized laboratory course in the introduction of the study of the physical sciences. Students will explore and learn about matter and the physical world around them. Students will be encouraged to make connections and problem-solve by inquiry learning. Topics in part one will include states of matter, atomic structure, the periodic table, chemical reactions, chemical bonding, motion and forces, work, energy. In part two, students will learn about the Earth and its place in the universe, weather, climates, the atmosphere and the environment. Integrated Physical Science will provide the knowledge, prerequisite skills, and habits of mind needed for problem solving and ethical decision making about matters of scientific and technological concern. Integrated Physical Science provides a basic foundation for advanced studies in chemistry and physics.

Physics (11-12)

The student is introduced to 14 broad-based physics concepts relevant to the technological workplace. These units include the study of force, work, rate, resistance, energy, power, force transformers, momentum, waves and vibrations, energy converters, transducers, radiation, light and optical systems and time constraints. The student upon completion of this course will understand modern, interdisciplinary systems where mechanical, fluid, electrical and thermal devices work together and where the principles are applied. Daily physics laboratory exercises provide students with hands-on applications of concepts presented.

Physics – Honors (11-12)

This course is designed for students with a high interest in science and who meet the qualifications for placement in an Honors program. Students should have completed Algebra II prior to enrollment in this course. Physics is the study of the interactions of matter and energy. A higher level of critical thinking ability and mathematical sophistication is expected in Honors sections. The laboratory program is closely correlated with the discussion of topics, and the student develops skill in laboratory techniques by setting up experiments, using instruments, interpreting data and evaluating experimental error. Experimentation, individual student inquiry and mathematical applications are an integral part of the course.

Nutrition – 2.5 credits (11)

(Health Care Science Majors only)

Scientific principles of nutrition outline the relationship of diet, lifestyle and the prevention of disease. An overview of the digestion, absorption, and metabolism of protein, carbohydrates, fat, vitamins and minerals is provided. Nutrition needs at various stages of the life span are stressed. Applying the science of nutrition to your life including needs for fitness and physical activity, evaluating nutrition claims, food labeling and other consumer concerns are emphasized. The student will be provided with basic knowledge of the science of nutrition and its application in health and the prevention of disease. *This course will provide the student an opportunity to earn three college credits as a full laboratory science from University of Medicine & Dentistry of New Jersey.*

SOCIAL STUDIES

World History (9)

This course examines the ideas, individuals, and movements from the Renaissance through the 19th century, which have been significant in shaping today's world. The contributions of civilizations and Eastern and Western Societies through time will be examined. Students will become familiar and appreciate the complexity of major issues in the contemporary world.

World History – Honors (9)

This course examines the ideas, individuals, and movements from the Renaissance through the 19th century which have been significant in shaping today's world. Honors students will examine social, political and economic principles of the past and draw correlations between contemporary principles. This course will challenge students' ability to research and interpret select historical topics, as well as develop appropriate analytical skills and creative means of applying them.

U.S. History I (10)

The course covers the political, economic, social and cultural growth of our nation from the Colonial period to 1900. Throughout the year, current problems are related to past events. An emphasis is placed upon those themes in the United States which have proven to be part of contemporary North American life. Activities are used throughout this course to develop the student's reading, writing, thinking and oral communication skills.

U.S. History I – Honors (10)

The course covers the political, economic, social and cultural growth of our nation from the Colonial period to 1900. The Honors portion of this course will utilize critical thinking skills to assess the foundations of the United States. Honors students will focus on primary documents and recorded evidence to establish a clear understanding of the adversity faced in creating a new nation and gaining credibility on the world stage. Honors U.S. History I will also investigate the political, social and cultural divides present in 19th century America. Students will conclude with their assessment of Reconstruction as a success or failure. Activities are used throughout this course to develop the student's reading, writing, thinking and critical thinking skills.

U.S. History II (11)

This course covers the time period from 1900 to the present. Emphasis will be on a broad-based view encompassing the Progressive reform movement of the early 1900s, the emerging United States domination of political, economic and cultural values, the multi-ethnic contributions to American Society and the United States' leadership in a constantly changing global environment.

U.S. History II – Honors (11)

The course examines the 1880s through to the modern era. Topics of study will include: Urbanization and Industrialization, American Imperialism, World War I, the Roaring 20s, the Great Depression, World War II, the Cold War, the Civil Rights Movement and the Vietnam War. The focus of this course will be how the stated events have molded the world in which we live today. Students will probe primary accounts and documents, as well as film and literature pertaining to the stated topics. Students will demonstrate their understanding of the course content through written work, technological applications and various styles of presentations.

Economics – 5.0 credits (12)

The Economics course is designed to offer students the opportunity to gain a greater understanding of the production, distribution, and consumption of goods and services. Economics is a full year course divided between the studies of two topics. The first semester is focused on microeconomic topics, including the market forces of supply and demand, elasticity and its application, and the efficiency of markets. During the second semester, students will explore several macroeconomic topics, such as measuring a nation's income, unemployment, and the influence of monetary and fiscal policy. NJIT Credit available.

Economics Honors – 5.0 credits (12)

In addition to covering all the material associated with the standard economics course, students who elect to take the honors level course will think critically about the relationship between economics and politics. The students will be required to apply economic theory to contemporary social, political, and economic issues. Students will also be asked to formulate and support opinions on several topics, including the degree of influence the government should have on the economy, whether the government should balance its budget, and the collection and distribution of tax revenue. NJIT Credit available.

Global Studies – 2.5 credits (12)

Global Studies will be offered to seniors as a semester social studies elective. This interdisciplinary course will focus on cultural and historical developments in three regions of the world: Africa, Asia and Latin America. The course will revolve around the geographical composition, religious beliefs and practices, the art and the contemporary economic, political and environmental issues facing these societies. Global Studies will place an emphasis on improving several academic skills including: active reading, oral articulation, map reading, research and writing. Students will be required to complete a comprehensive research project consisting of written, oral and multimedia presentations.

WORLD LANGUAGES

Chinese I

Chinese I is a course of elementary Chinese for students with little or no background in Mandarin. The training focuses on Hanyu Pinyin, pronunciation, tones, speaking and listening comprehension, daily dialogues, basic Chinese characters and phrases. The class activities make learning enjoyable and are aimed at helping students develop further communication in Chinese, as well as demonstrate the possibilities of using simple language to communicate more meaningfully and extensively with others.

Chinese II

Chinese II will teach students to focus on the four language skills of listening, speaking, writing and reading. This course will serve to help intermediate level students understand Chinese in a real world framework.

Chinese III

This course will emphasize listening comprehension in Chinese, reading with accurate pronunciation, writing Chinese characters in correct order of strokes, and improve students' fluency in conversation. This course will guide the students to extend their use of Chinese words to Chinese sentences and paragraphs; it will introduce relevant and interesting Chinese history and culture. ***Qualified students may be provided Chinese IV as an independent study.***

French I

This course is designed to provide students with the basic communication skills and cultural understanding required to use the French language in task oriented and social situations. Students will communicate at a literacy level with increasing logic and accuracy. Students will explore and appreciate similarities and differences among various cultures. Oral, reading, writing and listening skills are stressed throughout the curriculum. Entering freshman may elect to take Challenge Examinations to enter the French II program.

French II

This course continues to develop the student's skills in reading, writing, speaking and listening. There is increased oral and written expression required as well as the further study of culture and geography. Conversation and composition are more original and of greater length. Structural patterns are on an intermediate level. Reading selections consist of a variety of authentic French documents and literature. Videos, transparencies, interactive CD-Rom, music and creative projects are integrated within the program.

French III

Emphasis in French III is placed on the francophone world. Students will study Europe, Western Africa and the Caribbean via music, literature and film. Students will continue to use media resources and online interactive media to build upon the grammar and vocabulary foundation of the previous years' study. French III students may write a short story, a poem or song, create an ad campaign for a fashion product, research a facet of the Olympics and/or create a short movie clip.

French IV

This course is designed for students interested in the in-depth study of French. French IV focuses on comprehensive and in-depth work with language acquisition skills via the Aurolog software program, encompassing vocabulary, grammatical constructs, culture, dialogue and pronunciation. This is supplemented by reading, analysis and synthesis of select French texts and films. Clear, effective communication within the language is expected

Spanish I

This course is designed to provide students with basic communication skills and cultural understanding to apply the Spanish language in task oriented and social situations. Students will communicate at the novice proficiency level. They will explore and appreciate similarities and differences among various cultures. Oral, reading, writing and

listening skills are stressed throughout the curriculum. Videos, transparencies, interactive CD-Rom, other technologies, music and creative projects are integrated within the program. Entering freshmen may elect to take Challenge Examinations to enter the Spanish II program.

Spanish II

This course builds on basic communication skills and further develops reading, writing, speaking and listening skills. Students strengthen their foundation in oral and written expression through presentations, compositions and other projects. Structural patterns and communication are at the novice mid-proficiency level. Various cultural topics will be explored to encourage growth and understanding. Videos, transparencies, interactive CD-Rom, other technologies, music and creative projects are integrated within the program.

Spanish III

This course continues to develop the students' skills in reading, writing, speaking and listening. There is increased oral and written expression required as well as the further study of culture and geography. Conversation and composition are more original and of greater length. Structural patterns and communication are at the novice high-proficiency level. Videos, transparencies, interactive CD-Rom, other technologies, music and creative projects are integrated within the program.

Spanish IV

This course is designed for upper-level students and heritage speakers. It combines authentic literature, grammar and vocabulary. Fundamental language skills are practiced and refined. Emphasis is placed on oral and written expression through research, projects and compositions. Cultural topics are studied through literature and projects as well. Videos, transparencies, interactive CD-Rom, other technologies, music and creative projects are integrated within the program.

ELECTIVES MEETING VISUAL AND PERFORMING ARTS REQUIREMENT – 2.5 credits each

Advertising Art and Design (9-12)

This course bridges the historical traditions of art making with the aesthetics of computer technology. Students will develop visual literacy and skill, basic vocabulary of art and experience in manipulating the vocabulary through actual projects, principles of composition, color theory and concepts of space. Training will be provided in the use of pen, pencil, paint, collage techniques and painting, drawing and photo-image manipulation using Macintosh computers. Students will trace the development of art in advertising and create business cards, logos, brochures and advertisements.

Computers In Art (9-12)

This course serves as an introduction to the use of computers in fine and commercial art. The use of computers to create graphics, animation and layouts and presentations will be explored. The use of capturing data or artwork through video, scanners, CD ROMs and digitizers and altering it will be covered, as well as use of software programs for drawing and animation. Additionally, reproduction of the computer art will be addressed through exploration of color printers and video cassettes. Careers in computer animation and graphics will also be explored, as well as advances in the industrial use of computer art.

Creative Movement (9-12)

During this semester elective, students will learn movement concepts and skills to foster lifelong physical conditioning, flexibility, cardiovascular endurance and muscular endurance. Topics include Yoga, aerobic exercise, Jazzercise, Pilates and Laban Movement Analysis. Not offered to Dance Majors.

Creative Writing (9-12)

This course is designed to develop the student's ability to write clearly and effectively from original ideas. It is expected that a student who completes this course will be able to write short stories, a one-act play, objective and subjective descriptions, structure fiction for an emotional response, identify standards of dramatization, criticize film and other media using standard terminology and develop the ability to revise, proofread and edit.

Drama (9-12)

This course is designed to increase a student's skills in the fundamentals of drama and theatre. It is structured to enhance a student's awareness of voice and movement. Although students will learn about theatre history, the course will focus on active participation in which students perform daily. Activities include pantomime, improvisation, monologue and much more. The development of dramatic interpretation and effective critiquing will also be stressed. Students will study specific traits of dramatic and comedic characters along with elements of stage, film and television performances. Student will role play as directors, producers, play writers, set designers and stage hands to gain insight into all aspects of theatre.

Drawing and Composition 1 and 2 (9-12)

(Prerequisite: Drawing and Composition 2 is Drawing and Composition 1)

Drawing is designed to foster student interest and ability in rendering and to expand experiences in two-dimensional expression. Portraiture, figure drawing, perspective, still life, landscape and a variety of techniques and design approaches are investigated. Emphasis is placed on a concentrated study of drawing skills within the context of each lesson and topic area variety of media, historical references and aesthetic inferences are used to enhance knowledge and application.

Drawing and Composition 3 (10-12)

Drawing and Composition 3 is an advanced studio course where students perfect the "process" of building a full composition. Students will focus on creating a wide variety of images using different media for a single assignment. The purpose behind the class is the decide what concepts work best for the task at hand. A good eye doesn't look to capture a work of art on the frit try but to explore all of the possibilities before taking the artwork to a specific place.

Film Literacy (9-12)

Students will explore various genres of film and media. Silent, independent and blockbuster films will be analyzed for their aesthetic, technical and commercial qualities. Students will make connections between motion picture and television and learn how to enhance their writing skills through film study. The role of literature in film will also be examined. Students will apply their skills developed throughout the course to create original short films.

Fundamentals of Music (9-12)

This course would be a survey class designed to explore the fundamentals of music theory, form and style in several music genres by exploring basic scales, key systems, chords, rhythms and melody. Musical excerpts will be used to show the application of each concept. Technology includes the use of Finale Notepad to instruct and assess students' understanding.

Laboratory Band 1 (9-12)

(Prerequisite: Must play and own a musical instrument)

This course is designed to broaden the students' concept and knowledge of music by developing the skills to perform in various ensembles of many genres including jazz, folk, classical and rock. In addition to the skills needed to properly execute a performance, the students should know the general and historical setting of the composition; notice and understand the rhythmic, melodic, harmonic and design principles used by the composer. They should also be able to relate the style of each composition to that of the works that they have heard or played. Through the use of music composition software and instruction in music theory, students will be able to arrange, construct and compose their own parts as related to their specific instrument and incorporate those parts into the context of the ensemble.

Laboratory Band 2 (9-12)

(Prerequisite: Lab Band 1. Must play and own a musical instrument)

This course is designed to continue to broaden the students' concept and knowledge of music by developing the skills to perform in various ensembles of many genres including jazz, folk, classical and rock. Through the use of music composition software and instruction in music theory, students will be able to arrange, construct and compose their own parts as related to their specific instrument and incorporate those parts into the context of the ensemble. The emphasis in Lab Band 2 will be on student arrangements of musical selections and how that arrangement utilizes the topics and proficiencies covered in class. A constant striving toward excellence in technical and musical skills will be valuable long after the final performance. In addition to the skills needed to properly execute a performance, the students should know the general and historical setting of the composition; notice and understand the rhythmic, melodic, harmonic and design principles used by the composer. They should also be able to relate the style of each composition to that of the works that they have heard or played.

Laboratory Band 3

(Prerequisite: Lab Band 2 - Must play and own a musical instrument)

This course is a continuation of music theory concepts, including diatonic harmony, major and minor scales, modes and key systems and improvisation techniques. Music technology will feature music writing software and the setup and operation of live sound reinforcement systems, microphone types and selection, monitor systems and their application with musical groups as well as an introduction to multi track recording and production, using contemporary production techniques such as beat (loop) construction and basic introduction to digital plug-in effects.

Laboratory Band 4

(Prerequisite: Lab Band 3 - Must play and own a musical instrument)

This course is a continuation of music theory concepts including seventh chords, secondary dominants and leading tone chords, modulation, binary and ternary form of improvisation topics over standard blues and jazz chord progressions. Lab Band 4 will also feature music writing software and audio recording studio in a small environment, microphone selection and placement, create/e sound treatments, application of plug-in effects and the use of auxiliary tracks and busses as well as mixing in a digital format.

Music & Culture of Spanish Countries (9-12)

This course provides students with an overview of cultural mores, classical and popular music, trends, literature, and folklore of Spanish and Latin American countries. Students will not only gain an understanding of Hispanic cultures but also key insights into the influence these cultures have had upon our own society.

Music History (9-12)

Designed as an introductory music survey course, *Music History* will study concert music from the Middle Ages and Renaissance in a cultural and stylistic context with emphasis on the Baroque, Classical and Romantic periods as well as with a study of national differences in style. This course develops informed listening skills through direct and guided listening which will help students to more clearly understand the changes in musical styles, genres, and compositional techniques over the centuries. Students will also learn the basic European history that will help them to understand the context in which composers and performers made their music.

Public Speaking (9-12)

This course is designed to develop student fundamentals of oral communication and to enhance student self-confidence by improving writing, speaking and listening skills. Students will participate in collaborative class discussions to strengthen informal speaking and active listening abilities. Creative writing, organization strategies and presentation techniques will also be stressed. Students will study specific characteristics of effective speechmaking including appearance, non-verbal expression, voice, tone, speech habits and dramatic interpretation. Speech writing will include the use of structure, content and the mechanics of written communication. Students will improve their ability to write, prepare, and deliver speeches by paying attention to the subject, purpose and audience of each speech. Speeches will include (but are not limited to) the following: personal experience speech, demonstration speech, persuasive speech, motivational speech, eulogy/tribute, speech to inform, and speech to entertain. This course will also include instruction on presenting speeches using a variety of media and developing effective interview skills.

ELECTIVES- 2.5 credits each

(does not include electives that satisfy the Visual and Performing Arts requirement---See Electives Meeting Visual and Performing Arts requirement)

Accounting (11-12)

This course presents a strong foundation in basic accounting theory and procedures utilizing computer applications. Students will be involved in analyzing transactions, journalizing, posting, preparing financial statements and adjusting and closing entries. Students will also receive insight into the global marketplace and how accounting plays a key role in global business.

Advanced Video Game Programming (9-12)

This intermediate level programming course is intended as the 2nd of a pair of courses that includes Introduction to video game programming. It is designed to build on the experience gained by students in the first course in areas such as the C# programming language, Visual Studio, and proper programming technique. This will be accomplished primarily through game development for the Xbox and PC utilizing the XNA game studio software. While the students will learn how to create games, the course should really be regarded as one which teaches programming. All of the issues that are explored are also applicable in the wider scheme of software development.

Anthology of Spanish Literature (9-12)

This course provides an opportunity to immerse oneself in Spanish literature representing various historical periods, literary movements, genres, geographic areas and population groups within the Spanish speaking world.

Child Psychology (11-12)

This course consists of the interplay of biological, psychological, and cultural forces that shape the growing child from prenatal development through adolescence. Students will learn to interpret relevant research using a critical-thinking approach. Special emphasis will be placed on cognitive, language, physical, social, and emotional development. It will cover a variety of factors that influence child development.

Computer Applications (9-12)

This course focuses on several concentrations in business technology and covers computer concepts in detail. Students will acquire skills in word processing, spreadsheet and database applications. Students will become proficient with Microsoft Office tools including Word, Excel and Access.

Contemporary Issues in Sociology (9-12)

This semester course is designed for students to examine social, political and economic issues shaping our past and future. The internet, newspapers, magazines and television will be an integral part of this course. Topics include research, the cultural context of social life, socialization and gender, social groups and structure, inequality, deviance, social control and societal change.

Digital Video (11-12)

This course will explore techniques and practices of digital video production. Students will gain skills in tools such as Final Cut Pro and iMovie. Students will develop hands-on skills by working on a number of individual assignments as well as group projects.

Early Childhood Development (11-12)

This course will focus on the growth and development of the child, birth through age eight. Special emphasis will be placed on cognitive, language, physical, social, and emotional development. It will cover a variety of factors that influence child development. The objectives of this course are for the student to understand that a variety of factors influence the behavior of the child.

Environmental Science (9-12)

This half-year elective course is designed to develop a student's understanding of the natural environment and the existing problems that the world faces. Students will be able to apply the knowledge gained to their own ecological surroundings. Course content will be enforced through laboratory practices, as well as field work. An emphasis will be placed on local environments. In addition, students will develop an understanding of ecology in relation to making ethical decisions. Topics covered include ecological principles, population dynamics, natural resources, pollution, human interaction with the environment, and civic responsibility. Prerequisites for this course: None

Exercise Science (12)

(Prerequisite: Biology or Honors Biology AND Chemistry, Honors Chemistry, or a full year of Integrated Physical Science)

This half year course is a Senior-only elective. It is designed to develop a student's understanding of the physiology of exercise. Students will be able to apply the knowledge gained to their own individual lives. Physiological concepts will be enforced through practical application. In addition, students will be expected to keep a personal log throughout the course to monitor and reflect on their fitness progression. Topics covered include functional anatomy, muscle and cardiovascular physiology, nutrition, fitness assessments, and training. Upon completion of this course, students will have one year to pass an exam for personal trainer certification through the National Council of Strength and Fitness.

Financial Literacy (9-12)

Students will demonstrate understanding about how the economy works and their own role in the economy, and also develop the necessary skills to effectively manage personal finances. Students will apply knowledge, skills and ethical values when making consumer and financial decisions that impact self, the family, and local and global communities

Flexibility and Strength Training (9-12)

This course is a semester elective where students study human anatomy and physiology, kinesiology, nutrition, ergogenic aids and their relationship and application to conditioning and weight training. Students participate in and develop individual weight training and conditioning programs to improve cardio-respiratory endurance, flexibility, muscular endurance and overall body strength.

Genetics (10-12)

(Prerequisite: Biology)

This half-year elective course is designed to improve student's understanding of basic cellular biology and genetic principles. Students will be able to apply the knowledge gained to their own patterns of inheritance. Using a variety of hands-on activities and laboratory experiments, students will investigate the relationships between cellular components and physical traits. Topics covered include cellular biology, mitosis, meiosis, Mendelian genetics, protein synthesis and genetic analysis.

Global Cuisine (11-12)

(Students are responsible for purchasing a uniform approximate cost \$50.00)

This elective course is designed for students who wish to explore cuisines and cultures of other countries. They will be educated regarding the history and types of food and eating habits identified with the countries they are studying. This is an introductory, elective, one-semester course. There are no prerequisites or is culinary experience required. Instruction is provided in a commercial kitchen and classroom. Areas of study include an overview of fundamentals in sanitation and safety, ingredient identification, foreign meal patterns, spice research, food customs and prejudices, etiquette of other lands, and world holidays. Students will have hands-on experiences in a variety of simple food preparations and will participate in teacher lead demonstrations. Multi media and technology will be incorporated in the delivery of instruction. This is an exploratory course and will introduce the students to basic skills and techniques used in food preparation. Students will participate in group projects and will prepare and sample the foods prepared in class.

Human Behavior I (9-12)

The student will study and analyze human behavior from the conceptual framework that sociocultural items greatly influence the development of the individual's behavior and view of the world. The primary social science discipline is

psychology. Emphasis is given to the development of personality, learning, thinking, emotion, motivation, conflict adjustment and troubled personality. Opportunity is given for the student to develop attitudes and practices that will strengthen a healthy mental attitude and the understanding of self and others.

Human Behavior II (9-12)

(Prerequisite: Human Behavior I)

This course offers a basis for human understanding. Emphasis is given to understanding social problems such as crime, women's liberation, drug addiction, segregation, technological unemployment, changes in the family, preparation for marriage and child rearing, plight of the poor and problems of the aged.

Integrated Physical Science I (10-12)

This is an individualized laboratory course in the introduction to the study of the physical sciences. Students will explore and learn about matter and the physical world around them. Students will be encouraged to make connections and problem-solve by inquiry learning. Topics will include states of matter, atomic structure, the periodic table, chemical reactions, chemical bonding, motion and forces, work, and energy. Integrated Physical Science will provide the knowledge, prerequisite skills, and habits of mind needed for problem solving and ethical decision making about matters of scientific and technological concern. Integrated Physical Science provides a basic foundation for advanced studies in chemistry and physics. In the second half of this course students will learn about the Earth and its place in the universe, weather, climates, the atmosphere and the environment. Integrated Physical Science will provide the knowledge, prerequisite skills, and habits of mind needed for problem solving and ethical decision making about matters of scientific and technological concern. Integrated Physical Science provides a basic foundation for advanced studies in chemistry and physics.

International Business Strategies (11-12)

This course seeks to provide students with the skills and knowledge required to succeed in the business world. Students will explore the diverse environment, management concerns, financial issues and marketing questions faced by entrepreneurs and international business firms. Using an international business model the students will work as team members in a simulated business firm. The students have the opportunity to perform various business functions (i.e. purchasing, finance, marketing, human resources) as the firm transacts business with students in other simulated companies both in the United States and in other countries. Students will be involved in decision making, critical thinking and team activities. The course seeks to develop students' capacity to identify issues, to reason carefully through various options, and improve their ability to manage the organization process by which decisions are formed and executed. Students will utilize on-line resources for obtaining information and will research various multinational firms. Case studies and hands-on experience will be included.

Introduction to Computer Programming and Problem Solving (9-12)

Introduction to Computer Programming and Problem Solving is designed to introduce students to the fundamentals of programming through the development of problem solving and communications skills. The emphasis is on problem solving, programming methodology, algorithms, communications and the ethical use of computers. Students will learn these skills through the Alice Computer Programming Environment, a three dimensional virtual world where students create animations that implement a given scenario. Although students may have had previous computer experience, no programming knowledge is assumed. Students use object-oriented techniques to design and implement their programs in Alice.

Introduction to Java I (10-12)

(Prerequisite: Introduction to Computer Programming and Problem Solving)

This course will provide an introduction to the object-oriented programming paradigm using the Java™ programming language. Students will learn how to create objects, classes, and applications using Java™ to solve business and other real world problems. This course will cover the Java™ language fundamentals.

Introduction to Java II (10-12)

(Prerequisite: Java I)

This course will further explore the object-oriented programming paradigm using the Java™ programming language. Topics will include the Java Language API (application programming interface) and GUI (graphical user interface) applications. Students will create a working application to solve a real world problem using Java™.

Laboratory Sciences (9-12)

This is an individualized laboratory course in the introduction of the study of technology used in the science laboratory. Students will explore and learn about matter and the physical world around them and be encouraged to make connections and problem-solve by inquiry learning. This course will incorporate the necessary skills and safety procedures required in a science laboratory. These skills are necessary for the complete understanding of procedures and techniques performed during lab sciences. Particular emphasis will be given to strengthen technical and problem-solving skills. This course will also cover technical writing in the form of scientific research and scientific laboratory reports.

Medieval History (9-12)

This course will cover the time period from the fall of the Roman Empire to the era known as the Renaissance in the 15th century including selected topics of political, social, economic, and intellectual history. Students will gain an understanding of the ways medieval society functioned as a pioneer civilization, compelled to reorganize itself after the total collapse of the ancient world as well as the important interplay between the material and cultural forces in the process of social organization. Through a study of the crusades, students will also gain an understanding of the important interaction between the Western and Middle Eastern worlds.

Resource Center/Study Skills Support (9-12)

This pull-out resource center program is focused on the science and art of *how to learn*. The primary goal of the course is to equip individual students with personal strategies that will help them become independent thinkers and learners in high school and beyond. To this end, a workshop approach provides a forum where teacher and students become partners in the experience of learning. In mini-lessons, students are exposed to a wide range of motivational tips and learning strategies. As students sample these techniques, they quickly learn what works best for them. Students develop a repertoire of learning strategies that help them achieve their goals for their high school classes. Units of study which address the New Jersey Core Curriculum Content Standards include: goal setting, organizational skills and habits, time management, test rehearsal and test-taking, note-taking, content-area strategies (reading, writing and mathematics) and self-advocacy skills. Based on academic load and individual needs, the Learning Disabilities Teacher-Consultant in consultation with the student, parent, counselor and teacher (as appropriate) will decide the number of semesters the student will be scheduled in the Resource Center.

SAT Preparation in English and Writing (10-12)

SAT Preparation is a course designed to help students improve their SAT scores through the study of vocabulary and reading comprehension. Lessons are designed to help students become increasingly proficient in essay construction, written expression, sentence completions and responding to critical reading passages.

SAT Preparation in Mathematics (10-12)

SAT Preparation is a course designed to help students improve their SAT scores through the study of mathematics, word problems and vocabulary traditionally found on the SAT.

Spanish Culture and Communication (10-12)

(Prerequisite: Spanish I and Spanish II)

This course is designed for students who have already completed Spanish I and II but who would benefit from a non-traditional Spanish course (as identified by the Spanish faculty and administration). Students focus on utilizing Spanish in oral/aural situations, especially those situations specific to their different Academies. In addition, the students examine various aspects of culture through translations of Hispanic literature, current events, web-quests and other projects.

Study Skills Support (9-12)

If a student needs additional assistance to be successful, then he/she is assigned to this elective. Units of study include goal setting, organizational skills and habits, time management, test rehearsal and test taking, note-taking, content area strategies and self-advocacy skills. The student's instructors, guidance counselor, parents and students will make recommendations for participation in this course.

Introduction to Video Game Programming using C# (9-12)

Students will develop computer science knowledge and skills by learning how to program in C# using the Microsoft® XNA Game framework and Visual Studio® platform to create games. XNA Game Studio 3.0 will be used to create video games for Microsoft Windows®, the Microsoft Zune® digital media player, and Xbox 360.®

Although students learn how to create games, this curriculum unit is "serious" computer science. It covers most of the fundamental concepts that high school students need to know in order to succeed in introductory college-level computer science courses. The topics that are explored in this course are applicable to the wider scheme of computer science and interactive media studies.

Web Design (11-12)

This course will explore techniques and practices of Web Design. Students will gain skills in Web technologies such as HTML and JavaScript. Students will develop hands-on skills by working on a number of individual assignments as well as group projects.

ACADEMY AND SPECIALIZED SCHOOL CLUSTERS

Child Related Careers

Designed for the student who wishes to major in child growth and development, early childhood education or social services. Studies are concentrated in career exploration, child growth and development and all early childhood curriculum areas. Students will observe and work with preschoolers in our specially equipped child care laboratory during their course of studies. Students will explore a variety of careers involving children, educational opportunities

for private, public and special education, design and advertising careers related to the childhood development. Students will prepare to master competencies needed to obtain their Child Development Associate Credential (CDA) in accordance with New Jersey Department of Education Preschool Teaching & Learning Expectations.

Culinary Arts Cluster

Culinary Arts focuses on providing learners with a solid foundation of proven culinary theory on which they can build a repertoire of professional skills. Emphasis is placed on current industry cooking and baking methods and techniques, while providing an extensive hands-on experience in our commercial kitchen. Freshmen start with safety and sanitation, food service equipment and knife skills. Sophomore and junior students are challenged with menu planning, recipe evaluation and development, cost control, classical cooking methods and regional cuisine.

Finance and International Business Cluster

Students learn business and financial strategies for success in a business management or financial consulting career in a global marketplace. Career pathways include Financial Services, Business Management, Financial Planning and Accounting. Grade 9 studies include Introduction to Business Law, International Business Strategies, Public Relations and Computer Applications.

Specialized academy courses include Financial Planning, International Finance, International Business Strategies, Securities Operation, Banking and Credit, Real Estate/Mortgage Financing and Accounting, Commodities Challenge and Stock Market games. Students will also operate their own business in an international closed financial network. Participating partners include the County College of Morris, Johnson and Wales University and Pennsylvania College of Technology.

Health Care Sciences Cluster

Health Care Sciences is designed as an orientation of health care services and delivery from an interdisciplinary perspective. Students are focused on process skills including critical thinking, ethical reasoning, concept of professionalism, legal concept in health care, effective communications and foundations of personal development. Emphasis is placed on the role of the health care practitioner as both a provider and consumer of health care services. Students engage in activities in health and illness concepts, safety and infection control. Medical terminology concepts are incorporated into each lesson, providing students with the specialized language of health care profession. Students are exposed to health care industry through guest speakers, films, and field trips to health care agencies. Occupational skills include Universal Precautions, OSHA and First Aid certifications. Part I of Dynamics of Health Care in Society and Medical Terminology college courses are satisfied in this course.

Health Care Sciences II is designed as the second year of study of the basic Health Care Sciences course. Students explore the various career opportunities through shadowing professionals in the work environment. Health care team concept is visualized in field experiences. Students focus on advocacy, various client environments and unique deliveries of health care services. Students complete skills of vital signs, CPR for Health Care Providers and American Red Cross First Aid for certifications. Students learn basic concepts of nutrition through out the life span. Part II of Dynamics of Health Care in Society, Medical Terminology and Emergency and Clinical Care include college credits that are satisfied in this course.

Health Care Sciences III is designed to introduce the student to the technical components of health care delivery. Students will learn basic health assessment and physical assessment, and incorporate developmental considerations across the life span. They will learn principles of pharmacology, classifications of medications and preparation of medications using medical mathematics principles. Students will learn the intricate components of managing a health care office, the legal and ethical considerations of health care employment and medical office management. They will complete the principles and skills of basic care of clients in a health care setting. In each section, students will apply the theory to occupational practice through clinical experiences. They will engage in laboratory exercises, further career exploration with professionals engaged in specific technical activities and prepare for the SOCAT in Nursing Assistant Care. Students will prepare their resume, goals, objectives and internship agreements for their 12th grade experience. Concurrently, students will take Medical Mathematics, Nutrition and Anatomy & Physiology I through the UMDNJ articulation.

Health Care Science IV will prepare the student for entry-level positions in a health care related occupation or further education at the post-secondary level. Reinforcement of previously learned material in Nutrition and Health Prevention will be stressed as the student recognizes the importance of Wellness and Preventive care as part of the Healthy People 2110 initiative. The course will also expand on the acquired knowledge in area of professional relationships in varying health care settings as well as increased content of pharmacology and electrocardiography. The Grade 12 Option will include further science and professional courses in the areas of nursing, respiratory, dietary and general pre-medicine or therapist careers

Networking, Information Technology and Communications Cluster

CREATIVE—Multimedia	TECHNICAL—Networking
The course sequences is as follows:	The course sequence is as follows:
Freshman Year Design Concepts	Freshman Year Networking I
Sophomore Year Animation Digital Video	Sophomore Year Networking II Wireless Lan Technology
Junior Year Understanding Mass Media Portfolio Structure and Development Visual Communications Web Design	Junior Year Virtual Computing
Senior Year 3D Studio Max	Senior Year Networking Security Systems
<i>Providing they meet the academic criteria, students have the option of attending County College of Morris or taking advanced courses at MCST in their senior year.</i>	

Course Descriptions for Networking and Communications

3D Studio Max—Grade: 12

Students utilize 3D Studio Max modeling and animation software to create three dimensional parts, scenes, characters, and animated imagery for video and multimedia applications. Students also explore the design and development of portfolios and create a Professional Portfolio of their work along with a Resume and Cover Letter.

Animation—Grade: 10

This course will explore techniques and practices of 2D and 3D animation. Students will gain skills in Macromedia Flash MX 2004 and Alias Maya 5. Students will develop hands-on skills by working on a number of individual assignments as well as group projects.

Computer Troubleshooting and Repair—Grade: 9

In *Computer Troubleshooting and Repair*, students will troubleshoot and repair computers, from monitor to mouse, from memory to motherboard. Many PC repairs involve easy disassembly followed by quick plug-in replacement parts; many other problems are fixed by running diagnostic programs and letting the software guide the work.

Design Concepts—Grade: 9

This course will explore techniques and practices of digital design, fine arts, and multimedia. Students will gain skills in the use of several software including Adobe Photoshop, Illustrator, Quark, and Macromedia Flash. Students will develop hands-on skills by working on a number of individual assignments as well as group projects. Students will also explore art appreciation, sketching, drawing, and painting. Design Concepts is a five-credit course which forms the freshman exploratory curriculum of the Academy for Networking, Information Technology, and Communications.

Digital Video—Grade: 10

This course will explore techniques and practices of digital video production. Students will gain skills in tools such as Final Cut Pro and iMovie. Students will develop hands-on skills by working on a number of individual assignments as well as group projects.

Networking I – Grade 9

This course focuses on network terminology and protocols, LAN's and WAN's, Open System Interconnection (OSI) Models, Internet Protocol (IP) addressing, Ethernet, network standards, router programming & Configuration, IOS software management, TCP/IP and creating and using access control lists. This course prepares students for the first half of the CCNA certification (INTRO).

Networking II – Grade 10

(Prerequisite: Networking I)

Students will learn concepts and practical application of switching basics, intermediate routing, variable length subnet masking (VLSM), intermediate routing protocols (RIPv2, single area OSPF, EIGRP), CLI switch configuration, Virtual LANS (VLANs), Spanning Tree Protocol (STP), and VLAN Trunking Protocol (VTP). This course prepares students for the second half of the CCNA certification (ICND, Interconnecting Networking Devices).

Networking Security Systems – Grade12

Fundamentals of Network Security is a complete course of study in the basics of network infrastructure protection. Techniques involved in this course of study utilize both hardware and software configuration in preventative problem solving.

Portfolio Structure and Development--Grade: 11

In this course, students have an opportunity to formally develop and design individual pieces for their professional portfolios and to structure the contents. Students will explore various frameworks and the structures targeted for professional career portfolio development or for portfolios required for admission to higher education programs in Art, Design, Film and Advertising and Marketing.

Understanding Mass Media--Grade: 11

This course will explore Mass Media theories and practices. Students will study media planning and buying, print media, broadcast and online media, creative advertising, copywriting, design and production. Students will develop hands-on skills by working on a number of individual assignments as well as group projects.

Virtual Computing – Grade 11

This program includes extensive training in the use and implementation of the VMware family of software products including VMwarevSphere, VMware ESXI, VMware vCenter Server. Its focus is on installing, configuring, managing and troubleshooting VMware vSphere and combines the content of VMware vSphere 4 with advanced tasks and skills for configuring a highly available and scalable virtual infrastructure. This program prepares students for the examination to qualify them as a VMware Certified Professional.

Visual Communications—Grade 11

This course will explore the theory and practice of Visual Communications. Students will study the history of printing, graphic design and advertising principles, color theory and branding. Students will develop hands-on skills by working on a number of individual assignments as well as group projects.

Web Design—Grade: 11

This course will explore techniques and practices of Web Design. Students will gain skills in Web technologies such as HTML and JavaScript. Students will develop hands-on skills by working on a number of individual assignments as well as group projects.

Wireless LAN Technology—Grade: 10

Wireless LAN Technology is a complete course of study in the basics of network infrastructure protection. Techniques involved in this course of study utilize both hardware and software configuration in preventative problem-solving.

Veterinary Sciences Cluster

Veterinary Science is designed for the student who wishes to specialize in veterinary technology, large and small animal care, preventive medicine, practice management and research. Within the first three years, students engage in specialized courses of biology and chemistry for veterinary studies, medical terminology, comparative anatomy and physiology, microbiology for veterinary science, pharmacology, and business management and ethical and legal issues. In 10th and 11th grades, students participate in projects in preventive small animal care, emergency care of small animals, biotechnology, animal research principles, and veterinary practice management.

Visual & Performing Arts Cluster

The Academy for Visual and Performing Arts Cluster is a full-time, four-year high school program for students entering ninth grade. Students major in either Dance or Digital Imaging/Multimedia and participate in specialized interdisciplinary studies in Theater Arts, Humanities, Arts History and Visual Arts. Students participate in specialized academy courses. Career pathways for students include, but are not limited to, dance, television and media arts, advertising and design, screenwriting, computer graphics and animation, technical theater, movement science and film production.

Professional guest artists collaborate with the teaching staff in presentation of instruction. Participating partners include the Carolyn Dorfman Dance Company, Randy James Dance Works, the Bickford Theater at the Morris

Museum, the Arts Council of the Morris Area, the NJ State Council on the Arts-a partner agency of the National Endowment for the Arts, Arts Horizons, the Institute for Arts and Humanities Education, Young Audiences of NJ, Dance Theater Workshop and Rutgers State University-Mason Gross School of the Arts.

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