

2014-2015

Student Guide and Course of Studies



Winchester High School

80 Skillings Road

Winchester, Massachusetts

(781) 721-7020

THE WINCHESTER HIGH SCHOOL
MISSION STATEMENT

The mission of Winchester High School is to provide, for all of its students, an opportunity to achieve excellence in learning, specifically to foster:

- Critical thinking
- Clear and effective communication
- Intellectual creativity
- A sense of personal, civic and social responsibility, and
- The ability to apply these essential skills and knowledge to life situations

EXPECTATIONS

ACADEMIC EXPECTATIONS

The Winchester High School graduate is able to communicate effectively.

The Winchester High School graduate is able to acquire, integrate and apply essential knowledge.

The Winchester High School graduate is able to analyze, interpret and evaluate information effectively.

The Winchester High School graduate is able to make intellectual and practical connections between and among different disciplines.

The Winchester High School graduate is able to understand and apply technology to his/her learning experience.

The Winchester High School graduate works to acquire an informed global perspective.

CIVIC AND SOCIAL EXPECTATIONS

The Winchester High School student demonstrates self-respect and an appreciation of diversity.

The Winchester High School student participates responsibly as a member of the student body.

GOALS

Our school goals are:

1. to educate the complete individual, and
2. to provide the student with the knowledge, skills, and values needed to enrich his/her own life and be a responsible member of society, and
3. to be a school that demonstrates leadership and innovation in education and is a matter of pride and value for the Town of Winchester.

**STATEMENT OF COMMITMENT TO POLICY OF
NON-DISCRIMINATION**

Winchester High School provides equal educational opportunity for all students and does not discriminate on the basis of race, color, sex, religion, national origin, sexual orientation, or disability. Students have equal access to admission to school courses, extracurricular activities, and employment opportunities. Students who believe they have been victims of discrimination are hereby notified that grievance procedures are available to them and that they should contact the principal for more information. Counseling services are available to help students address their individual needs.

GRADUATION REQUIREMENTS

Students must earn a minimum of **110 credits** to be eligible for graduation.

The following courses must be taken and passed for students graduating in **2015, 2016 & 2017**:

<u>Subject</u>	<u>No. of Years</u>
English.....	4 years (including 1 semester of Writing Lab)
Social Studies.....	3 years (including World History I & II and American History)
Science.....	2 years: 1 Biology and 1 Physical Science (i.e. Chemistry or Physics)
Mathematics.....	2 years
Physical Education/Health.....	4 years
Fine or Applied Arts*.....	1 year

The following courses must be taken and passed for students graduating in **2018** and beyond:

<u>Subject</u>	<u>No. of Years</u>
English.....	4 years (including 1 semester of Writing Lab)
Foreign Language.....	2 years
Social Studies.....	3 years (World History I & II and American History)
Science.....	2 years (1 Biology and 1 Physical Science, i.e. Chemistry or Physics)
Mathematics.....	2 years
Physical Education/Health.....	4 years
Fine or Applied Arts*.....	1 year

*Five credits must be earned in Fine or Applied Arts. Eligible courses include any courses in content areas not listed above.

The following assumptions will govern the above requirements:

With the exception of the double-period Humanities and the American Studies offerings, no course may be utilized to satisfy more than one requirement.

- A full-year course will receive 5.0 credits.
- All Freshman, Sophomores, and Juniors are expected to carry a full academic load. Exceptions require the approval of a principal or an assistant principal. A full academic load is defined as 6 courses per semester. A lesser academic load is defined as five courses per semester.
- Seniors enrolled in two or more AP courses may take a lesser academic load.
- Seniors not enrolled in two or more AP courses may take a lesser academic load during 2nd semester, with parental and administrative permission. Additionally, the student must have a 2.5 GPA or better and be in good academic standing.

INFORMATION FOR TRANSFER STUDENTS

For complete information concerning the process for transfer students, including the documents required, go to the Winchester Public Schools Web site: www.winchester.k12.ma.us and look under "Guidance".

Transcripts from other schools will be evaluated by the Guidance Department in conjunction with the assistant principal. Incoming students must provide full documentation from the sending school which includes an official transcript, withdrawal form, health and immunization record, and disciplinary record. In addition, students transferring from other Massachusetts public schools must provide their MCAS scores. In order to maintain consistency and equity in this process, the following guidelines will be adhered to:

- A. When a student enters Winchester High School, he/she will be awarded credit based on the interpretation of his/her guidance counselor after reviewing the student's previous school's transcript(s).
- B. Students will be required to meet Winchester High School graduation course requirements to be eligible to earn a Winchester High School diploma. The Guidance Department, in consultation with department directors/coordinators, will determine whether any courses must be made up prior to graduation. In accordance with the Massachusetts Department of Education mandate, all students must also earn passing scores on the MCAS examination to be eligible for a high school diploma.
- C. Transfer students' grades from their previous school(s) are not used in the GPA calculations from Winchester High School.
- D. In the case of students entering during a grading period, the following guidelines will apply:
 1. If the student enters during the first half of the marking period, the teacher will take the grade from the prior placement into consideration and will assign the grade.
 2. If the student enters during the second half of the marking period, the student may, at the teacher's recommendation and with permission of department head and administrator, be graded on a pass/fail basis.
- E. Students transferring in should bring their health and attendance records with them and may be held accountable for their cumulative absences.

COURSE CHANGE POLICY

Requests for schedule changes after the start of school will only be granted if:

- A student did not pass a class that was a prerequisite for another class.
- Summer school coursework necessitates a change in the student's schedule.
- A course change is necessary for a grade 12 student to fulfill a graduation requirement
- An error has been made inputting a student's course choices
- Authenticated health reason

Schedule changes for other reasons will not be made after the start of school.

Throughout the school year level changes can only be made with the completion of a level change form. Level changes will not be allowed during the last two weeks of 1st, 2nd and 3rd quarters. After the third quarter, students will not be allowed to drop a course to a lower level.

Students may drop a class to add a study hall while still maintaining a minimum load of 30 credits/six courses. Students who wish to withdraw from a class within the first two weeks of a course must see their guidance counselor for proper paperwork. The student must continue to attend the class until a new schedule has been issued. If a student does not follow proper procedure, he/she will receive a failing grade. Students who withdraw after the first two weeks of a course will receive a "W" for that class. Students who withdraw after the sixth week of a class will receive a WF (withdraw fail), WP (withdraw pass), or WM (withdraw medical).

504 - Section 504 is an Act which prohibits discrimination against persons with a handicap in any program receiving Federal financial assistance. The 504 Act defines a person with a handicap as anyone who:

1. Has a mental or physical impairment which substantially limits one or more major life activities (such as caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning and working.)
2. Has a record of such an impairment or is regarded as having such an impairment.

The intent of Section 504 on schools is to "accommodate" for differences within the regular educational environment. Winchester High School has developed procedures and safeguards for students under Section 504 and recognizes a responsibility to avoid discrimination in policies and practices regarding its personnel and students. A student's eligibility is determined by a team at Winchester High School. For further information regarding Section 504, parents may contact their child's guidance counselor.

Instruction of Homebound Students - Home instruction of pupils unable to attend school because of a documented physical disability or illness shall begin as soon as possible after it has been established that the child's absence will extend over a period of more than fourteen (14) school days related to the same medical issue. Such home instruction will cease upon the child's return to school. Parents should call their school counselor for the necessary forms to request home instruction.

It is the responsibility of the teacher to provide assistance with make-up work not covered by the above instructional arrangements.

Home Schooling - Parents may choose to educate their children at home without using the public school system. According to state law, parents must submit their proposed curriculum to the Superintendent (or his/her designee) for approval.

EARLY GRADUATION

In some instances, students with parental consent may choose the option of graduating a full year in advance of their class. This option is open to all students provided the following procedures are adhered to:

1. The student, through their counselor, must request the early graduation at the end of the sophomore year or during the first semester of the junior year.
2. The counselor will hold a meeting with the student, the parent, and the principal to discuss options, what the decision may mean in terms of future goals, and whether the decision is appropriate, based on the student's prior academic record. Should the student and his/her parent(s) decide to continue this process, the parent will submit in writing a formal request for early graduation to the principal.
3. If early graduation is agreed upon, the work necessary to complete the diploma requirements will be determined either in the meeting mentioned above, or in a meeting held before the close of the first semester of junior year. The requirements for early graduation will be included in a written plan to be signed by the student, parent, principal, and guidance counselor.
4. Upon completion of all agreed-upon work by the student, a diploma will be granted.

OTHER EDUCATIONAL OPPORTUNITIES

Vocational Education Opportunities

Winchester is one of 12 communities that are served by the Northeast Metro Tech High School in Wakefield. Admission to Northeast typically takes place at the end of 8th grade, when students apply from their respective communities. The 9th grade year is an exploratory year, during which students have an opportunity to sample a variety of vocational opportunities. Students may also apply to Northeast after the 9th grade, although their choices are limited by the number of vacancies in the vocational department to which they are applying. Applications are due by March 1, 2014 for the 2014-2015 school year; please call Northeast Admission Office at (781) 246-0810, Ext. 1651 to receive an application.

There are two additional ways in which students may be admitted to another vocational school. Parents may apply to other vocational schools in the area who have "school choice". Under the school choice regulation, students are accepted under a lottery system and if accepted, Winchester funds the tuition at the school. In the second option, students from Winchester may be eligible to attend a vocational school outside of the Northeast Metro Tech High School, if they apply in grade 10 for a vocational choice which is not offered at Northeast. For additional information regarding vocational education, parents and/or students should speak with the Winchester High School guidance department.

Independent Study

Independent Study is a program that Winchester High School offers for 11th and 12th grade students. This program broadens the curriculum by offering students an opportunity to pursue an area of **academic** interest under the guidance of an advisor who has special skills in that field. Independent study projects may not replicate the existing curriculum at Winchester High School. Specialized topics contained within existing courses may be pursued at the advanced level after the student has taken the appropriate prerequisites. **NOTE: Honors credit will not be given for Independent Study.**

It is important that students understand the workload for an independent study course is equal to a course offered at the high school. Students take responsibility for their own learning in an independent study course.

Proposal Submission Process

- **Your proposal:** A Proposal form must be completed by the student and clearly indicate the topic, the process for learning, the times and places of learning, and specific activities that will be used for evaluation of the Independent Study course. All of these decisions should be worked out between the student and his/her advisor.
- **Submission of Your Proposal:** Proposals should be submitted in the semester prior to the semester for which they are proposed. The final deadline for full year and first semester proposals is two weeks after the first day of school. The final deadline for second semester proposals is the last day of school prior to midterm examinations. ***Retrospective proposals are not accepted.***
- **Student Responsibilities:** A student taking Independent Study is individually responsible, by definition, for completing work on time, meeting with the advisor, and keeping the advisor informed of progress in completing the independent study. Students are solely responsible for adhering to quarter and semester deadlines, as well as any deadlines set by the advisor. Work must be submitted according to these deadlines.
- **Grading and Credits:** Grades are weighted at the CP level and will be part of a student's GPA. Credit is determined by the amount of time a student spends learning. Credit is awarded for semester (2.5 credits) and/or full year (5 credits). One semester, 2.5 credits, is equal to 72 hours of work.
- **Withdrawal:** A student may withdraw from Independent Study only by following the normal withdrawal process for regular courses as outline in "Withdrawal Policy" on page 2.

Community Service-Learning

Community Service-Learning is a teaching and learning methodology that blends meaningful service to the community with curriculum-based learning so that each enriches and enhances the other. Through service-learning, students build knowledge, character, and civic skills, and they improve academic skill by applying what they learn in school to the real world. Community service-learning is an area that has been singled out in several national reports on excellence as an integral part of the education process. A growing number of faculty offer courses at the high school that utilize community service-learning as a teaching tool. Students interested in taking such a class should contact Kristen Ritchie, the Connect & Commit Community Service-Learning Program Director, at x1999 or kritchier@winchester.k12.ma.us.

HIGHER EDUCATION INFORMATION

(For Students Planning to Attend a Four-Year College or University After High School Graduation)

Winchester High School uses the Admissions Standards Policy adopted in 1996 by the Massachusetts Board of Regents of Higher Education as a minimum eligibility guide to course selections for students planning to attend a four-year college or university. In some instances, Winchester High School's requirements exceed the course work required by the Board of Regents, so that students may be eligible for admission to the most selective colleges.

Minimum Required College Preparatory Course work for Admission to Massachusetts State Colleges and University of Massachusetts

English	4 courses
Mathematics	3 courses
(U. Mass Amherst requires completion of 4 courses to be eligible for Engineering, Management, and Computer Science)	
Sciences	3 courses (including 2 lab courses)
Social Studies	1 course of World History and 1 course of United States History
Foreign Language	2 courses in a single language
Elective Subjects	2 courses (Arts, Humanities, Computer Sciences, or the above subjects)

Beginning with the class of 2017 - 4 Math courses will be required for Math .

Beginning with the class of 2018 – all 3 Science courses must be lab courses.

Some competitive colleges may have additional requirements.

Criteria for College Admission

College admission requirements vary widely from school to school. As a guideline, colleges and universities usually consider the following factors:

- **Academic Record** (grades received and levels of courses)
 - Standing in class (WHS uses deciles, rather than rank)
 - Grade Point Average (GPA)
- **Results of College Entrance Examination Board (CEE) Examinations**
(Some colleges require or prefer the ACT rather than the SAT and Subject Tests.)
 - SAT Reasoning Test
 - SAT Subject Tests
- **Writing Sample**
- **Teacher/Counselor Recommendations**
- **Extracurricular Activities (including work experience.)**

COURSE DESCRIPTIONS BY DEPARTMENT

ART

Director: Jennifer Levatino jlevatino@winchester.k12.ma.us

The Art Program consists of courses that develop students' creative abilities and visual communication skills. Students will participate in hands-on art studio, photography lab and computer lab activities that explore the use of a wide variety of two-dimensional and three-dimensional art materials.

Through individualized and group instruction, art teachers stress the importance of experimentation and balance this with the more guided development of technical skills with specific art materials. The thirteen courses currently being offered by the Art Department have been designed to sharpen students' critical and creative thinking skills and to increase students' confidence in their own creativity. All courses fulfill the Fine and Applied Arts graduation requirement.

0601 ADOBE PHOTOSHOP I (CP) (9, 10, 11, 12) S 2.5 (Fulfills one-half of the Fine and Applied Arts graduation requirement.)

Students will explore the potential of the computer as a visual arts tool. Under the direction of an art instructor, students will use Adobe PhotoShop. The skills that are developed in this course have both fine art and commercial art applications. Students who enroll in this course should have basic computer skills.

0602 ADOBE PHOTOSHOP II (CP) (9, 10, 11, 12) S 2.5 (Prerequisite: Adobe Photoshop 1 with B or better) (Fulfills one-half of the Fine and Applied Arts graduation requirement.)

This course continues to use the Adobe Photoshop CS6 software as the means to create digital artworks. Students will learn more advanced techniques, tools and applications which will enable them to develop a body of work that expresses their unique responses to open ended, creative projects. Students will have the opportunity to create a digital portfolio using the multifaceted Adobe CS6 program in the Mac Lab. Students will have opportunities for guided exploration through other components of the Creative Suite including Illustrator, In Design, Flash Animation and Dreamweaver. Students will have access to software such as Garage Band, Final Cut Pro and I-Movie to further augment more independent projects. They will also have access to all the equipment in the Mac Lab including green screen for video editing, digital cameras and scanners. This course is designed for the advanced computer user.

0635 COMPUTER ANIMATION I (H) (9, 10, 11, 12) S 2.5 (Fulfills one half of the Fine and Applied Arts graduation requirement.) (Prerequisite: Students who select this course should have a strong comfort level using the PC or Macintosh computer and should be able to demonstrate Adobe Photoshop skills and other abilities with advanced software. Completion of any art course or computer course at WHS is recommended before taking Computer Animation I.)

This course will allow students to enter the creative world of digital animation through Macromedia Flash and Adobe After Effects software and other hands-on experiences. As the director and producer, students will discover how the principles and concepts of animation are applied to the creation of their own multimedia animation that may integrate sound, music, photography, drawings, video clips, text and other imagery. As students begin to develop production techniques they will focus on creativity, individuality, originality in the formation of their storyline and concept. Animation involves electronic drawing and manipulation of graphics, creating and adjusting frame types, sequencing and regulating timing, adding transitions for scenes, tweening objects for movement, adding special effects, editing and revising frames, and creating front and ending matter. For major animation projects, students will present ideas in a well planned and written format for discussion with the teacher for prior approval. This course will require a variety of outside work, including: reading and writing assignments, research, or other assigned projects. Students will maintain an animation portfolio for assessment and presentation for each quarter.

0636 COMPUTER ANIMATION II (H) (9, 10, 11, 12) S 2.5 (Fulfills one half of the Fine and Applied Arts graduation requirement.) (Prerequisite: Computer Animation I with a minimum grade of B)

The primary goal for continuing students will be to produce advanced digital animations that are creative, imaginative, and have meaningful plots. As directors and producers, students will continue to develop their production techniques and will apply the fundamental principles of animation to their work. Through the use of Macromedia Flash and Adobe After Effects software animation productions may integrate sounds, music, photography, drawing, video clips text and other sources of imagery in a highly imaginative manner. Collaborative projects can be developed to focus on specific themes that are unique, artistic, and spontaneous. To be considered as exemplary, students must complete at least one additional animation project that demonstrates exceptional work. This course will require a variety of outside work, including: reading and writing assignments, research, or other assigned projects. Students will maintain an animation portfolio for assessment and presentation for each quarter.

0600 SCULPTURE (CP) (9, 10, 11, 12) S 2.5 (This course fulfills one-half of the Fine and Applied Arts graduation requirement.)

This half year course is offered to students who enjoy working with 3-D materials. The emphasis is on the development of technical skills and creativity while using a variety of form building materials; clay, plaster, wood, foam core, found materials and wire. This course will also reinforce and broaden the student's understanding of the elements and principals of art and design through creative problem solving and critical thinking.

0613 HONORS SCULPTURE (H) (10, 11, 12) S 2.5 (Prerequisite: Sculpture 1 with a B or better) (This course fulfills one half the Fine and Applied Arts graduation requirement.)

This semester long course focuses on advanced techniques, materials, and concepts of 3-Dimensional art. This course is designed for students who are interested in learning more about traditional materials (clay, stone, plaster, wood) and processes such as mold making and alternative finishing processes for ceramic work. Students will have opportunities to use observation of nature and the human forms as subject matter for their work. There will be collaborative ceramic building projects and students will also be instructed on the wheel.

0604 PHOTOGRAPHY II (CP) (9, 10, 11, 12) S 2.5 (Prerequisite: B in Photography I) (Fulfills one-half of the Fine and Applied Arts graduation requirement.)

This course will provide the opportunity for students who have taken Photography I to explore advanced printing techniques, including color print processing. While the course will focus primarily on darkroom printing techniques, students will also experiment in alternative photographic processes such as the use of different format cameras, Polaroid imaging and emulsion transfers, cyan-o-type, daylight printing paper and digital imaging. The photographic image as fine art will be a central concern. Students will be expected to build a photographic portfolio.

0612 DIGITAL PHOTOGRAPHY CP (10, 11, 12) S 2.5

Students will learn all phases of digital photography, from exposure/capture to the final output as a printed image and/or a digital image for web presentation. Students will learn the basic camera skills necessary to create successful photographs such as exposure, focus, white balance, and depth of field.

Students will also learn “digital workflow” and this includes downloading their photographs to the computer and editing, processing and preparing them for output using Adobe Photoshop CS2. Students will learn how to make prints using photo inkjet printers and will be able to optimize their photographs for use on the Internet. Students will learn how to present their work using PowerPoint and will study the work of other artists both inside and outside the field of photography. Digital cameras will be available for students to borrow during the course.

COMPUTER EDUCATION

Director: TBA

0635 COMPUTER ANIMATION I (H) (9, 10, 11, 12) S 2.5 (Fulfills one half of the Fine and Applied Arts Graduation Requirement)

This course will allow students to enter the creative world of digital animation through Macromedia Flash and Adobe After Effects software and other hands-on experiences. As the director and producer, students will discover how the principles and concepts of animation are applied to the creation of their own multimedia animation that may integrate sound, music, photography, drawings, video clips, text and other imagery. As students begin to develop production techniques they will focus on creativity, individuality, originality in the formation of their storyline and concept. Animation involves electronic drawing and manipulation of graphics, creating and adjusting frame types, sequencing and regulating timing, adding transitions for scenes, tweening objects for movement, adding special effects, editing and revising frames, and creating front and ending matter. Students will also have to incorporate the use of a green screen (a technique known as chroma key) in their animation projects. For major animation projects, students will present ideas in a well planned and written format for discussion with the teacher for prior approval. This course will require a variety of outside work, including: reading and writing assignments, research, or other assigned projects. Students will maintain an animation portfolio for assessment and presentation for each quarter.

0636 COMPUTER ANIMATION II (H) (9, 10, 11, 12) S 2.5 (Fulfills one half of the Fine and Applied Arts Graduation Requirement.) (Prerequisite: Computer Animation I with a minimum grade of B)

The primary goal for continuing students will be to produce advanced digital animations that are creative, imaginative, and have meaningful plots. As directors and producers, students will continue to develop their production techniques and will apply the fundamental principles of animation to their work. Through the use of Macromedia Flash and Adobe After Effects software animation productions may integrate sounds, music, photography, drawings, video clips, text and other sources of imagery in a highly imaginative manner. Students should aim to utilize the green screen in one of their projects. Collaborative projects can be developed to focus on specific themes that are unique, artistic, and spontaneous. To be considered as exemplary, students must complete at least one additional animation project that demonstrates exceptional work. This course will require a variety of outside work, including: reading and writing assignments, research, or other assigned projects. Students will maintain an animation portfolio for assessment and presentation for each quarter.

0642 GAME DEVELOPMENT & INTERACTIVE MEDIA PROJECTS (H) (9, 10, 11, 12) S2.5 (Prerequisite: Web Design I with a passing grade and prior approval of the teacher.)

Using game engines and introductory programming languages such as Python, Unity and HTML 5 students will learn how to create interactive and engaging games. Students will create multimedia gaming experiences which employ a multi-dimensional approach and introduce students to the field of game development. Students will develop strategies for customizing games and building options by using a variety of programming based tools and develop assessments for problem solving within game layouts. Students will be asked to develop projects which address a variety of game creation opportunities for the purpose of learning, interactive, strategy, simulation, adventure, logic and role playing games.

0631 WEB DESIGN I (H) (9, 10, 11, 12) S 2.5 (Fulfills one-half of the Fine and Applied Arts Graduation Requirement)

Have you ever wondered how Web pages on the Internet are made? Do you want to have the skills to create interesting Websites? This course teaches the basics of building and maintaining a site on the World Wide Web. We work with Web graphics created by Adobe Photoshop, Macromedia Fireworks, Flash & Dreamweaver MX. You will learn the basics of HTML code, creative design concepts and tricks of the trade. Students will maintain a portfolio of projects for assessment. The knowledge of the Internet language is especially helpful for further studies and career paths in this area.

0632 WEB DESIGN II/Dreamweaver MX (H) (9, 10, 11, 12) S 2.5 (Prerequisite: Web Design I with a minimum grade of a C- or prior approval of the teacher.) (Fulfills one-half of the Fine and Applied Arts Graduation Requirement)

Macromedia Dreamweaver MX, Flash, Fireworks and Adobe Photoshop are our continued focus. Students will work in teams or independently to create advanced Websites that are designed for aesthetics and function with introductory interactivity. Students will learn the HTML and CSS (cascading style sheets) to construct their website. Find a client and build the site; you have potentially earned an advanced grade. One major segment of this course will be the maintenance and enhancement of the Winchester Public Schools Websites. Get your FTP skills developed as we transfer files to the WWW. Students will be encouraged to maintain an Internet-based portfolio. (NOTE: Some students may be able to select this course without the prerequisite—prior approval is required.) The knowledge of the Internet language is especially helpful for college studies and career paths in this area.

0634 INTRO TO SPORTS, RECREATION/ENTERTAINMENT MARKETING AND ENTREPRENEURSHIP

(CP) (9, 10, 11, 12) S 2.5

Ever wonder what goes on behind the scenes of the fascinating world of sports professional careers, and the fast-paced recreation/entertainment shows we watch and read about everyday? This course is an introduction and survey of these exciting fields. By observation and marketing analysis we will study concepts and strategies and the role of ecommerce. Students will discover how these exciting industries generate such popularity. The following key areas will be examined and explored as part of the curriculum: marketing strategies and tools, economics of the industry, advertising and promotion ideas, promotion campaigns, product licensing, agents and personal managers, merchandising, safety and security, advertising, visual merchandising, human relations, the sales process, sales promotion, merchandising, designers, market research, organizational management, economics, careers, marketing trends, customer relations. Students will work on various business plans, which include commercial production, event promotion, and the duties of a sports agent. Students will research, discuss, present, and work in small cooperative learning groups as well as complete outside reading and homework. This course is an excellent elective for potential college business majors and other related sport management studies.

0641 DEVELOPING MOBILE APPLICATIONS FOR IPHONE, IPAD, AND ANDROID DEVICES (H) (10, 11, 12) S 2.5

How often have you had an idea for an iPhone or iPad app but didn't know where to start? In this course, students will learn the basics of mobile application development using Flash CS5, ActionScript 3, and Photoshop. Projects will focus on software architecture, interface layout, and multi-modular real-time user interaction. The course will teach students to build iOS apps and games from initial prototyping all the way up to deployment. This honors level course has a Web Design I requirement.

0637 INTRODUCTION TO COMPUTER SCIENCE (CP) (9, 10, 11, 12) S 2.5

Introduction to Computer Science is a class that prepares students for AP Computer Science (Java) (though students may elect to take only Introduction to Computer Science).

Introduction to Computer Science includes human computer interaction, problem solving, basic web design, and introduction to programming — though it is not as programming-heavy as the APCS classes. Students learn principles of computer science and computational thinking practices in advance of an introduction to programming through Scratch or Snap.

Introduction to Computer Science will meet the Fine and Applied Arts graduation requirement and may be elected for up to 5 credits.

ENGLISH

Director: Judy Hession jhession@winchester.k12.ma.us

A student's assignment to English each year is determined by consistent quality of performance during the preceding year and teacher and counselor recommendations.

1. Honors English in grades 9, 10, 11, and 12 is offered to students who have demonstrated consistent ability to operate at a high level and to persevere. Placement in grade 9 is determined by the mastery level demonstrated in the middle school English program. **Students must maintain a B (not B-) average to remain in the Honors sequence. They must earn a grade of A- or an A to move into the Honors sequence from the CP level. These are the prerequisites for Honors English.**
2. American Studies Prerequisite: Requires a "C" average or better in previous English and Social Studies courses. Students may enroll in this class at an Honors level only if they have achieved a "B" grade, or higher, in **both** their 10th grade Honors English and Social Studies courses **and** are recommended by **both** their 10th grade Honors English and Social Studies teachers.
3. Humanities Prerequisite: Requires a "C" average or better in previous English and Social Studies courses. Students may enroll in this class at an Honors level only if they have achieved a "B" grade, or higher, in **both** their 10th grade Honors English and Social Studies courses **and** are recommended by **both** their 10th grade Honors English and Social Studies teachers.
4. Advanced Placement English in Grade 12 is offered to a select group of students who have demonstrated that they can assume a high level of personal responsibility for their work. Advanced Placement candidates must have revealed ability to work consistently at a sophisticated cognitive level, to manipulate details in an imaginative way, and to write excellent critical analyses.

The selection process will involve three criteria:

- a) Students must apply for this course and submit work in support of their application. Only those with grades of B or better in Honors or A- or better in CP are eligible to apply.
 - b) Students must be recommended for this course by their current teacher.
 - c) Students' applications must be approved by the Director of English.
5. All sophomores take Writing Laboratory during the first semester of the sophomore year. **Successful completion of this course is a requirement for graduation. Students who fail Writing Lab must retake the course, and this can be done only at Winchester High School.**
 6. For the English requirement, American Literature is offered either as a full year course or as a semester course in conjunction with Speech or Creative Writing. Possible combinations to fulfill the English requirement are:
 - o The Hero's Journey/American Fiction
 - o The Hero's Journey/Creative Writing
 - o Speech and Debate/American Fiction (NOTE: A student may not take the first semester of Speech and Debate and the second semester of Creative Writing sequentially to fulfill a full year English requirement)**These semester courses must be taken sequentially to fulfill a full year English requirement.**

ELECTIVE COURSES

0422 AP COMPUTER SCIENCE (AP) (11, 12) Y 5.0 (Prerequisite: Grade of B- or better in Honors Algebra 2 and Trigonometry, grade of A- or better in Advanced Algebra and Trigonometry, Grade of B- or better in Advanced Pre-Calculus or Grade of C- or better in Honors Pre-Calculus.) This course must be taken concurrently with another math course. It does not satisfy the math requirement of WHS or most colleges. Completion of summer work packet by the first day of school is required.

This is an introductory computer science course with Computer Programming utilizing the programming language of JAVA. The major topics include computer concepts, control structures, functions, arrays, pointers and strings and an introduction to object oriented design and implementation. All students are required to take the exam

0419 AP STATISTICS (AP) (11, 12) Y 5.0 (Prerequisite: Grade of B or better in Advanced Pre-Calculus, Grade of C or better in Honors Pre-Calculus or Grade of B or better in Honors Algebra 2 and Trigonometry and completion of summer work packet by the first day of school)

This course covers exploring data, sampling and experimentation (planning and conducting a study); anticipating patterns (exploring random phenomena using probability and simulation); and statistical inference (estimating population parameters and testing hypotheses). The use of graphing calculators is an integral part of the course, allowing the student to explore a variety of approaches to a problem. This course will prepare students for the Advanced Placement Statistics exam given in May. All students are required to take the exam

0400 MCAS PREP MATH (CP) (10) S 1.25 Second Semester

This course meets three times a cycle and is taken by those 10th graders who are determined to need additional math instruction in preparation for the math MCAS exam. This course is always taken in addition to another math class.

0433 ENRICHED ALGEBRA (CP) (9) S 2.5 First Semester

This course will rapidly cover all traditional topics in Algebra 1 and select topics from Algebra 2. Completion of this course will enable students to be prepared for Advanced Algebra 2 and Trigonometry. Must be taken concurrently with Advanced Geometry.

0440 OC – Computer Science Programming (H) (11, 12) Y 5.0 (Prerequisite: Grade of 5 on the AP Computer Science A exam; and approval of the Director of the Mathematics Department)

This is a course in advanced programming using Java or other programming languages in a project-based environment. This course covers advanced topics in data structures, algorithms, program efficiency and correctness, and language variants. Students will complete online homework/exams.

0451 OC – Differential Equations (H) (11, 12) Y 5.0 (Prerequisite: A grade of 5 on the AP Calculus BC Exam; and approval of the Director of the Mathematics Department)

This is an advanced course in the study of differential equations in Calculus. Students will complete online homework/exams.

0452 OC – Discrete Mathematics (H) (10, 11, 12) Y 5.0 (Prerequisite: A grade of B+ or better in Algebra 2 Honors; must be taken concurrently with another math course; approval of the Director of the Mathematics Department)

This course is an introduction to a variety of topics in Discrete Mathematics. Students will complete online homework/exams.

0453 OC – Linear Algebra (H) (11, 12) Y 5.0 (Prerequisite: A grade of B+ or better in Honors Pre-Calculus; must be taken concurrently with AP Calculus BC or have completed an AP Calculus AB/BC course; approval of the Director of the Mathematics Department)

This course is an introduction to a variety of topics in Linear Algebra. Major topics studied are matrix algebra, including orthogonal matrices, determinants, and least squares; eigenvalues and eigenvectors; and vector spaces and operations. Students will complete online and/or written homework/exams.

0454 OC – Mathematical Problem-Solving I (H) (10, 11, 12) S 2.5. (Prerequisite: A grade of B+ or better in Honor Algebra 2 and Trigonometry; must be taken concurrently with another math course; approval of the Director of the Mathematics Department)

This is a course in the art of problem-solving. Students will complete online and/or written homework/exams.

0455 OC – Mathematical Problem-Solving II (H) (11, 12) S 2.5 (Prerequisite: Completion of Mathematical Problem-Solving I; must be taken concurrently with another math course; approval of the Director of the Mathematics Department)

This is an advanced course in the art of problem-solving. Students will complete online and/or homework/exams.

0456 OC – Multivariable Calculus (H) (11, 12) Y 5.0 (Prerequisite: A grade of 5 on the AP Calculus BC Exam; approval of the Director of the Mathematics Department)

This is an advanced course in the study of Calculus. Topics include advanced techniques of integration, first order linear differential equations, vector operations, 3D surfaces and functions of several variables. Students will complete online homework/exams

0513 PRINCIPLES OF CHEMISTRY (CP) (10, 11) Y 5.0

This is a student-centered, activity-based, course designed to develop an understanding of chemistry. Concepts for study will include the properties of elements and compounds, acid-base reactions, atomic and molecular structure, and the interactions of matter and energy. Activities will involve critical thinking, decision-making, and the building of laboratory skills.

0507 PHYSICS (H) (11, 12) Y 5.0 (Prerequisite: A grade of "B" in Algebra II Advanced or Honors or demonstrated aptitude in mathematics and recommendation of the current Science teacher)

Students who elect this course will be involved in the study of some of the fundamental and important principles of Physics. Topics to be studied include most of the following: Kinematics, Newtonian dynamics, thermodynamics, electricity, magnetism, optics, and waves. Emphasis will be placed on the quantitative treatment of these topics involving the integration of mathematical skills with the concepts of Physics. The student will pursue a significant amount of laboratory work, and will be engaged in an intensive amount of problem solving. The topics are covered in a manner consistent with the Massachusetts Frameworks for Physics. The course includes many of the topics covered in the SAT II Physics test. However, students wishing to complete all topics covered in the SAT II Physics exam will have to spend a significant amount of time preparing on their own in order to be prepared for the test.

0508 PHYSICS (CP) (11, 12) Y 5.0 (Prerequisite: Algebra B (CP) completed, or being taken concurrently.)

A college preparatory course, Physics (CP) involves the student in the study of the basic concepts of physics. Among the topics included in the course are Kinematics, Newton's Laws of Motion, gravitation, momentum, energy; electricity, magnetism, sound, light, and optics. This course is designed for students whose background in mathematics is less advanced than required for Physics (H). Topics studied are consistent with the Massachusetts Frameworks for Physics.

0512 PRINCIPLES OF PHYSICS (CP) (11,12) Y 5.0

This course explores how the principles of physics play a key role in everyday life. Students will learn how sports, transportation, art, music, light, and electronics relate to physics. A variety of teaching techniques will be employed: hands-on activities, labs, worksheets, computer simulations, and demonstrations. Some algebra will be required; all necessary problem-solving strategies will be modeled extensively. Topics studied are consistent with the Massachusetts Frameworks for Physics.

ELECTIVE SCIENCE CLASSES:

Note: Juniors can choose to take an additional science course as an elective; however, seniors will be given preferential placement and therefore some juniors may not be able to be placed in the course of their choice.

AP Courses: Due to time limitations, AP students will be required to complete a substantial amount of work during the summer and independently during the school year. At the completion of each course, students are encouraged and expected to take the Advanced Placement exam. Many colleges and universities accept results of the AP examinations as evidence of competency in collegiate level introductory courses, although the standard accepted for competency differs from school to school.

0500 ADVANCED PLACEMENT BIOLOGY (AP) (11, 12) Y 5.0 (Prerequisite: Demonstrated excellence in Biology, Chemistry and Physics, two of which must have been taken at the Honors level; approval of the current Science teacher and the Director of Science. Honors Physics may be taken concurrently with this course.)

The goal of Advanced Placement Biology is to provide students with the conceptual framework, factual knowledge and analytical skills necessary to deal critically with the rapidly changing science of Biology. The AP Biology course is designed to meet the objectives of a college introductory Biology course. Students accepting the challenge of an Advanced Placement course must be highly motivated to learn, as the course will require each student to actively participate in all lectures and laboratory activities that are conducted during the year. Reading requirements for the course are rigorous and require a daily commitment (1-2 hours) in order to stay current in the class. Due to time limitations, each student will be required to complete a substantial amount of work during the summer and independently during the school year.

This course is highly recommended for all students who may major in Biology, other Sciences, or allied health fields.

0501 ADVANCED PLACEMENT CHEMISTRY (AP) (11, 12) Y 5.0 (Prerequisite: Demonstrated excellence in Honors Chemistry and in either Honors Biology or Honors Physics or both; approval of the current Science teacher and the Director of Science. Honors Physics may be taken concurrently with this course.)

The Advanced Placement Chemistry course is designed to be a rigorous course that examines many of the topics encountered in the general chemistry course usually taken during the freshman college year. Significant areas to be studied include atomic and molecular structure; states of matter; chemical bonding; stoichiometry; solutions; equilibrium; chemical kinetics; thermodynamics; acid/base chemistry, oxidation-reduction reactions; and descriptive chemistry. Laboratory experiments include acid-base titration, electrochemistry, synthesis and identification of compounds, and applications of LeChatelier's Principle. All experiments will require the safe use and understanding of simple and advanced laboratory apparatus and techniques.

0528 ADVANCED PLACEMENT ENVIRONMENTAL SCIENCE (AP) (11, 12) Y 5.0 (Prerequisite: Demonstrated excellence in Biology, Chemistry and Physics, two of which must have been taken at the honors level; approval of current science teacher and Director of Science. Honors Physics may be taken concurrently with this course.)

Environmental science is one of the most important sciences of our time: From global climate change and sustainable energy development to mass species extinction and habitat loss, the short and long term impact humans are having on the biosphere is evident. The goal of AP environmental science is to provide students with the understanding, skills and context needed to identify and analyze this impact. Students will evaluate potential risks associated with human effect on the biosphere and examine alternative solutions for dealing with problems. This interdisciplinary course will investigate issues not only from the scientific lens, but also from economic, political and sociological perspectives.

0502 ADVANCED PLACEMENT PHYSICS (AP) (12) Y 5.0 (Prerequisite: Demonstrated excellence in Biology, Chemistry and Physics, the latter two of which must have been taken at the Honors level; approval of the current Science teacher and the Director of Science. Calculus must be taken concurrently (or already have been taken). Taking the Calculus BC course is strongly recommended.

Advanced Placement Physics focuses on Newtonian mechanics, taught at the level of an intensive, calculus-based freshman college Physics course. Other topics introduced in the course may include some of the following: modern physics (including relativity, and atomic structure), thermodynamics, mechanical waves, electricity, magnetism and optics. Much emphasis is placed on the integration of mathematical skills with the solving of Physics problems.

0523/0524 ANATOMY & PHYSIOLOGY (CP or H) (11, 12) Y 5.0 (Prerequisite: Successful completion of Biology, Chemistry, and Physics and approval of current Science teacher. Physics may be taken concurrently.)

Anatomy and Physiology is an in-depth course that focuses on the structures and functions of the human body. Each of the body's eleven organ systems is studied in detail. The theme of homeostasis is frequently revisited to unify the coursework, and various diseases and disorders are investigated as examples of what happens when homeostasis is lost. Lab activities are an integral part of the course and will include experiences such as dissection, urinalysis (using synthetic urine). ELISA (Enzyme-Linked Immunosorbant Assay) testing, as well as hands-on and proactive in collecting vital data such as heart rate and blood pressure. This course may be taken for Honors or CP credit. Honors or CP credit will be based on the student's chosen commitment to the depth and breadth of lab work, exams, homework, and research projects.

0525/0526 BIOENGINEERING, BIOTECHNOLOGY AND ETHICS (CP or H) (11,12) Y 5.0 (Prerequisite: Successful completion of Biology, Chemistry, and Physics and approval of current Science teacher. Physics may be taken concurrently.)

BB&E is a full year course that will investigate the new technologies that are increasing available to scientists and the ethical implications of using them. Students will learn and perform molecular techniques such as DNA isolation, restriction enzyme digestion, polymerase chain reaction, and bacterial cloning. Students will become proficient in the proper use of the tools and equipment of biotechnology labs, and will learn how scientists apply these tools and skills in genetic engineering, drug discovery, and stem cell research. Students will also explore and debate current issues such as genetic engineering, genetically modified food products, genetic screening, and stem cell research.

0517 FORENSIC SCIENCE (CP) (11,12) Y 5.0

0519 PRINCIPLES OF FORENSIC SCIENCE (CP) (11,12) Y 5.0

(Prerequisite: Successful completion of Biology, Chemistry, and Physics, or approval of Science Director. Physics may be taken concurrently.)

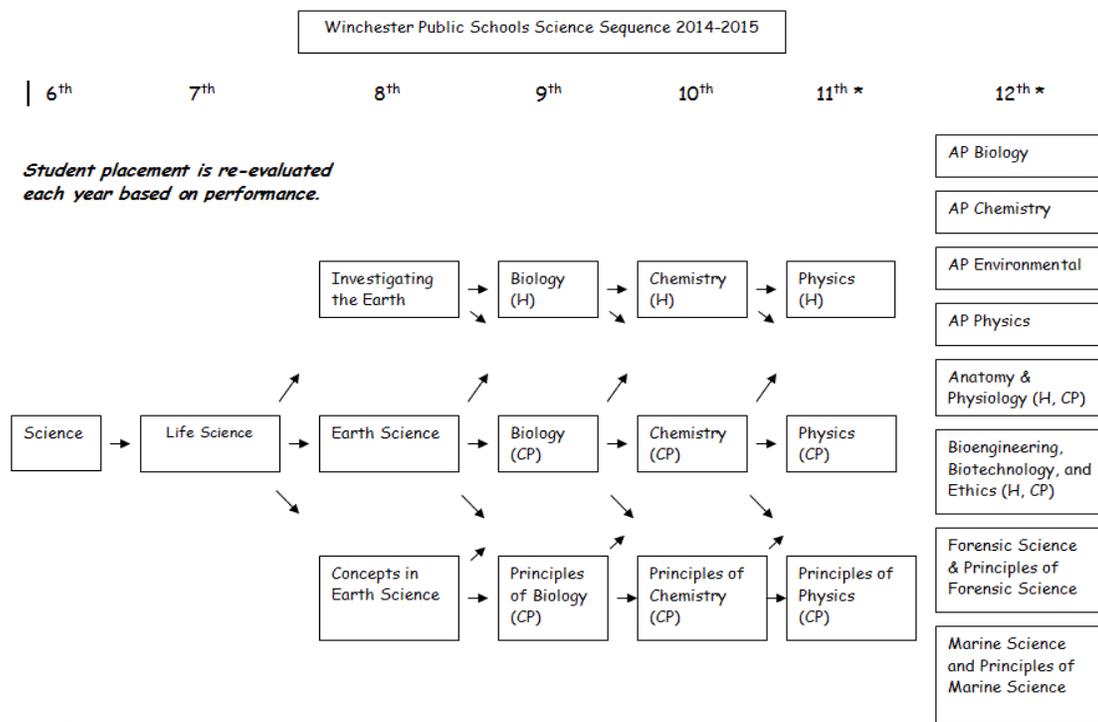
Forensic Science is an introduction to some of the specialized fields of Forensic Science, the principles of Science and Technology upon which they are based, and the application of these principles to various analyses of crime scene evidence. Forensic Science includes all areas of scientific endeavor, such as medicine, psychology, geology, physics, chemistry and biology. Topics such as arson, blood typing and blood spatter analysis, entomology, pathology, chromatography, fingerprinting, soil analysis, DNA fingerprinting, hair and fiber analysis, hand writing analysis and toxicology will be studied in this course.

0521 MARINE SCIENCE (CP) (11, 12) Y 5.0

0522 PRINCIPLES OF MARINE SCIENCE (CP) (11, 12) Y 5.0

(Prerequisite: Successful completion of Biology, Chemistry, and Physics, or approval of Science Director. Physics may be taken concurrently.)

Marine Science is a full year, activity-oriented course that will investigate and explore the oceans of our planet. Topics will include Marine Biology: an in-depth study of the many types of marine habitats and organisms; Oceanography: a basic study of waves, currents, weather, and the chemistry of the ocean; Ocean Exploration: a study of SCUBA diving, snorkeling, deep-sea vessels and other means of observing undersea habitats; and Marine Fisheries: an investigation into the state of seafood stocks around the world.



0343/0344 MODERN GENOCIDE AND HUMAN RIGHTS (CP or H) (12) S 2.5 (Honors Prerequisite: A B grade in American History (Honors) or an A- grade in American History (CP) and/or the recommendation of the eleventh grade social studies teacher.)

This seminar will include the examination of the causes and consequences of events such as the transatlantic slave trade, the oppression of the Irish, the Armenian genocide, the Holocaust, the genocides in Cambodia, Rwanda and Darfur, the Palestinian-Israeli conflict, the rights of stateless peoples, human trafficking and other related topics. The goal of this course is to teach students about these problems to make them aware as responsible citizens in a complex, troubled world. The seminar will involve discussion and debate, as well as analytical papers and group and individual presentations.

0347/0348 THE MODERN MIDDLE EAST (CP or H) (12) S 2.5 (Honors Prerequisite: A B grade in American History (Honors) or an A- grade in American History (CP) and/or the recommendation of the eleventh grade social studies teacher.)

It is almost impossible to pick up a newspaper or flip on the news without hearing about the Middle East. As important as it is to be aware of these current issues, it is equally important to truly understand the history of this region. This course examines major trends in the evolution of the Middle East in the modern era. Middle East history with an emphasis on four themes: imperialism, nationalism, modernization, and religion.

0111/0112 HUMANITIES: AN INTERDISCIPLINARY APPROACH (CP or H) (12) Y/Double 10.0

(Prerequisite: Requires a "C" average or better in previous English and Social Studies courses; Students may enroll in this class at an Honors level only if they have achieved a "B" grade, or higher, in **both** their 11th grade Honors English and Social Studies courses (B- in AP US History) **and** are recommended by **both** their 11th grade Honors English and Social Studies teachers.)

Humanities is a double-credit course for seniors in the literature, history, art and music of Western civilization. Organized chronologically and interdisciplinary in approach, Humanities emphasizes especially the classical and medieval periods, the Renaissance, and selected aspects of the nineteenth and twentieth centuries. Students study the work of many of the major writers, artists and composers of the Western tradition. Papers and projects are both analytical and creative.

Students may elect to work at the honors level in this course by meeting the requirements of the English and Social Studies courses for honors level work. Humanities fulfills the Fine and Applied Arts requirement as well as the senior English requirement.

TECHNOLOGY/ENGINEERING

Coordinator of Technology/Engineering: David Petty dpetty@winchester.k12.ma.us.

The Technology/Engineering Department offers courses that are beneficial for all students. Courses are designed to help students develop the knowledge, skills, and work ethic necessary to successfully pursue further college preparation, technical careers at the post secondary level or to help obtain employment upon graduation.

Students are challenged to apply the "Design Process," as described in the Massachusetts Curriculum Frameworks for Technology/Engineering, to plan, create, build, test, manage, and assess technology through individual and group activities. These activities will involve students in action based "hands-on" processes that utilize tools, machines and specialized equipment. The courses are designed so that students will gain an understanding of how technology can be applied to benefit society and how science and technology can impact human affairs as well as our environment in both positive and negative ways. Care and attention are devoted to the further development of each student's talents, knowledge, skills and interests.

The following Technology course offerings can be taken for a full year or half-year either semester and can be elected to fulfill the 5 credit "Fine and Applied Arts" graduation requirement.

0733 ARCHITECTURAL COMPUTER DESIGN (Arch/CAD) (CP) (9,10,11,12) S 2.5

0734 ARCHITECTURAL COMPUTER DESIGN (Arch/CAD) (Honors) (9,10,11,12) S 2.5 (Honors criteria: 2 additional CAD drawings over CP requirements and term paper or scale model of designed home.) Architectural Drawing and Computer Aided Design will meet the "Fine and Applied Arts" graduation requirement and may be elected for up to 20 credits.

Students will be challenged to take their own original designs and transform them into scaled architectural plans using hand drafting skills as well as computer-aided design software. The students will also learn functional space planning techniques, basic construction standards and design conventions that will allow them to design a variety of projects such as sheds, decks, garages and vacation homes. Other related design aspects such as site planning considerations, aesthetic and environmental impacts will be addressed as projects develop on an individual basis.

0743 ENGINEERING THE FUTURE (CP) (9, 10, 11, 12) S 2.5

0745 ENGINEERING THE FUTURE (H) (9, 10, 11, 12) S 2.5

Engineering the Future course will meet the Fine and Applied Arts graduation requirement and may be elected for up to 20 credits. Students who elect to take Engineering the Future for honors credit are expected to keep an engineering notebook, present written and diagrammatic communications at every phase of the engineering design process, and present their results at the completion of each project undertaken.

The engineering course is a semester course designed to give students an understanding of the engineering processes that provide us the products we use everyday. Students use the engineering design process to analyze, build, and test projects in the areas of transportation, manufacturing, communication, and construction. Students complete work in two or more of these areas each semester, constructing working projects while learning the role engineering plays in solving problems and helping to make our lives better.

The Engineering the Future course is a hands-on project centered experience, which will help you to understand:

- How engineering is used to make our world function.
- Why technological systems operate the way they do.
- The benefits and the detriments of technology in our world.
- Who are engineers and why did they choose this career.
- How new technology products are developed.

0744 ROBOTICS / ELECTROMECHANICAL DESIGN (CP) (9, 10, 11, 12) S 2.5

0746 ROBOTICS / ELECTROMECHANICAL DESIGN (H) (9, 10, 11, 12) S 2.5

Robotics / Electromechanical Design is an elective semester course for students interested in working hands-on with robots. Students design, fabricate, program, and use task-oriented robots. The course covers the engineering design process, basic electrical and mechanical design, and basic microcontroller programming. This is an exploratory course where students demonstrate mastery by building a robot. Students study various sensors and various actuators (for analysis and action in the real world) and combine them with a controller to build a complete system designed to accomplish a task. The safe and proper operation of all machines and tools is covered. The course includes the study of current industrial, commercial, governmental, and competitive robotics. No previous experience in robotics, electronics, or mechanics is necessary.

Students who elect to take Robotics / Electromechanical Design for honors credit are expected to keep an engineering notebook, present written and diagrammatic communications at every phase of the engineering design process, and present their results at the completion of each project undertaken.

Robotics / Electromechanical Design will meet the "Fine and Applied Arts" graduation requirement and may be elected for up to 20 credits.

0747 COMPETITIVE ROBOTICS (CP) (9, 10, 11, 12) Y 2.5

0748 COMPETITIVE ROBOTICS (H) (9, 10, 11, 12) Y 2.5

(Competitive Robotics will meet the "Fine and Applied Arts" graduation requirement and may be elected for up to 20 credits.)

Competitive Robotics is an elective course for students interested in designing, building, and working hands-on with competitive robots. The robots built by students in Competitive Robotics (and the students on the Winchester Robotics Team) compete in National Robotics League combat robot competitions in various weight classes and Botball autonomous robotics competitions. No previous experience in robotics, electronics, or mechanics is necessary. Students who take Competitive Robotics are expected to attend all local competitions — at most 4 per year — that occur on Saturdays.

Students who elect to take Competitive Robotics for honors credit are expected to keep an engineering notebook, present written and diagrammatic communications at every phase of the engineering design process, and present their results at the completion of each project undertaken or after every competition.

0731 TV STUDIO AND VIDEO PRODUCTION (CP) (9, 10, 11, 12) S 2.5

This course is taught in the Win CAM television studio. Students will work together as production teams to plan, direct, shoot and edit their own TV show or video production. Everyone will have the opportunity to explore all the various roles associated with broadcast communications. Students can host and act as guests on their own talk show, produce a video as a project for one of their other classes or sports team, or submit individual proposals to be approved by the teacher. Students will be involved with directing, lighting, sound, computer effects, scripting and storyboarding as well as the basics of camera operations. Student projects of suitable community interest may be aired on the Winchester cable channel.

TV Studio and Video Production will meet the "Fine and Applied Arts" graduation requirement and may be elected for up to 20 credits.

0732 TV STUDIO AND VIDEO PRODUCTION (H) (9, 10, 11, 12) S 2.5

Students who have taken the first semester introductory level course and wish to explore more advanced studio aspects of video production including digital applications and nonlinear editing may request to take the course for honors. These students must have earned at least an **A-** in the first semester course and agree to more extensive assignments.

TV Studio and Video Production will meet the "Fine and Applied Arts" graduation requirement and may be elected for up to 20 credits.

0749 ADVANCED TV STUDIO AND VIDEO PRODUCTION (CP) (9, 10, 11, 12) S 2.5 (Prerequisite: TV Studio and Video Production)

Building on knowledge of basic concepts learned in TV STUDIO AND VIDEO PRODUCTION, students will work together to produce sophisticated studio programs and will assemble elaborate segments utilizing remote and editing equipment. Students will further explore the roles of production personnel, learn advanced director techniques for both studio and field shoots, and methods of advanced editing. From pre-production to post-production, Advanced TV Studio & Video Production offers essential training for students interested in pursuing a career in media. Student productions will air on local Winchester cable channels and out-of-class time commitments may be required.

0740 WOODWORKING AND CABINET MAKING I (CP) (9, 10, 11, 12) S 2.5

Woodworking and Cabinet Making I will provide students with the opportunity to design, construct, and finish various furniture projects. This "hands-on" activity oriented course is for the beginner attempting his or her first woodworking project. The safe and proper operation of all woodworking machines is covered along with relevant background information on hand and power tools needed for cutting, shaping, forming and finishing wood. Woodworking and Cabinet Making I will meet the Fine and Applied Arts graduation requirement and may be elected in combination with Woodworking and Cabinet Making II for up to 20 credits.

0741 WOODWORKING AND CABINET MAKING II (CP) (9, 10, 11, 12) S 2.5

Woodworking and Cabinet Making II will provide students with the opportunity to design, construct, and finish various furniture projects. This "hands-on" activity oriented course is for the advanced woodworker who wants to try a unique woodworking operation such as making cabriole legs, applying inlay and insets, or making raised panel doors. The safe and proper operation of all woodworking machines is covered along with relevant background information on hand and power tools needed for cutting, shaping, forming and finishing wood. Student needs to have taken Woodworking and Cabinet Making I.

Woodworking and Cabinet Making II will meet the Fine and Applied Arts graduation requirement and may be elected in combination with Woodworking and Cabinet Making I for up to 20 credits.

NON-DEPARTMENTAL

2000/2001 STUDENT ASSISTANT (9,10,11,12) #2000 Year - #2001 Semester No Credits (times to be arranged) Pass/Fail

Students interested in working as a student assistant (often in place of an academic block) should seek out a department office or other offices where they would like to work. They should then ask either the department head or an administrator to fill out the Student Assistant request form (available in Main Office and Guidance) and turn it in to an assistant principal.

INDEPENDENT STUDY (C1) (11, 12) Y 5.0 or S 2.5 See Pages 5-6, Other Educational Opportunities, Independent Study.

STEM (Science, Technology, Engineering, Mathematics) **CERTIFICATE PROGRAM**

Massachusetts and the nation are experiencing a STEM pipeline problem — a shortfall of workers properly equipped with the science, technology, engineering, and mathematics (STEM) education and skills necessary for success in an innovation economy. Over the past 20 years, the number of students graduating from STEM majors at U.S. colleges and universities has remained unchanged. During this same period, demand for STEM workers has grown at more than four times the rate of the overall U.S. workforce.

K-12 school systems are beginning to address how to better prepare, engage, and excite a significantly higher number of students to pursue a STEM curriculum, thus priming the front end of the higher education/workforce pipeline.

To prime this pipeline, we must engage a more diverse spectrum of students in STEM fields of study. The STEM Certificate Program is a strategy to increase the awareness, interest, and motivation of students for STEM related careers.

Students may download the packet materials from Edline. The packet includes all requirements, portfolio forms, and information to guide the students through the process of achieving STEM certification.

Students are responsible for obtaining the necessary approvals and maintaining their portfolio throughout their high school career. Students who complete all requirements may submit their portfolio for review. All portfolios must be submitted for review by October 1 or April 1 of the school year.

Portfolios will be reviewed by a committee consisting of a teacher and a community member in the fall and spring of each academic year.

STEM Certificate Requirements

*** Students have the right to appeal any of the requirements below to achieve a STEM Certificate. Appeals should be made to the STEM Review Committee (see Mr. Petty).**

1. Academic

- a. Successful completion of 3 years of mathematics and enrollment in a 4th year.
- b. Success completion of *Biology, Chemistry, and Physics* courses and enrollment in a 4th year.
- c. Successful completion of *Engineering the Future*.
- d. Successful completion of three of the following Technology/Engineering, Computer Education, Art, and Mathematics courses:
 - *Architectural Computer Design (C1/H)*
 - *TV Studio and Video Production (C1/H)*
 - *Robotics and Electromechanical Design*
 - *Computer Animation I and II (H)*
 - *Web Design I and II (H)*
 - *Photoshop I and II*
 - *Digital Photography*
 - *AP Computer Science*

2. STEM-Focused Project

- a. A STEM Focused Project could include any of the following:
 - One full year of Robotic Club participation
 - Independent study / project in science, mathematics, technology, or engineering
 - Internship of at least 30 hours in an approved location

3. STEM-Focused Project Reflection

- a. A reflective essay of 250-500 words reflecting upon the students STEM-Focused Project presented to a group of educators and professionals.

4. A STEM Focused Resume

NOTES