

Chantilly Academy

Engineering & Scientific Technology Health & Human Services Course Offerings 2007-2008

Early Childhood Careers 2 credits

ECC offers opportunities to learn basic teaching skills and explore careers in education. Early Childhood Careers I combines the study of child growth and development with participation in the planning and operation of a preschool laboratory for three and four-year-olds. It focuses on basic teaching skills, learning theory, and lesson planning. Career opportunities working with children are explored, such as social work, education, psychology, speech and hearing, and childcare. Early Childhood Careers II focuses on curriculum planning, design of learning environments, and leadership. The second-year students may participate in an internship in an elementary school. Class instruction expands on the skills of Early Childhood Careers I and includes development of employment strategies.

Engineering Systems 1 credit

The Engineering Systems two year program offers opportunities to learn basic engineering skills and explore careers in engineering. Engineering Systems I focuses on basic skills, giving students a sample of civil, mechanical, electrical, aeronautical and robotic engineering. Students plan and conduct engineering projects, use math, language arts, and science activities, and work in teams to design, research, and build working prototypes of real world systems. Students engage in a 6-week intensive engineering project in fields such as robotics, rocketry, naval systems or other individual interests. The second year focuses on major engineering projects such as robotics and satellite technology. Students design projects, conduct research, and participate in business and industry partnerships while experiencing the work of planners, designers, engineers, machine operators, personnel managers, and technicians.

Hospitality Management 2/3 Credits

This course is designed for students to investigate and prepare for careers in the hospitality industry. During class periods at luxury hotel training sites, students will become familiar with the operation of departments such as: Marketing, Sales and Convention Services, Front Office, Accounting, Human Resources, and Food and Beverage Operations including culinary arts, specialty restaurants, and banquet and catering services. Students develop and analyze a business plan; demonstrate supervisory skills and enhance presentation skills. Instruction is conducted at the Hyatt Fair Lakes.

Electronics 1 credit

This course includes information on electrical, electronic theory and applications, computer aided instruction, circuit simulation, components, circuitry troubleshooting, use of test instruments and lab training devices. The course covers the fundamentals of basic electronics of DC circuit theory. Students interested in engineering or related careers will benefit from this course. *This class is offered through CTHS and is not an Academy class. Transportation may be available to feeder schools on Academy shuttles.*

Network Administration 2 credits

Network Administration is a comprehensive, hands-on computer course in which students learn how to install, monitor, manage, and troubleshoot computer operating systems. Topics include network installation, configuration and management, and cyber and network security. Students may elect to obtain industry recognized professional certifications as they successfully progress through the *Microsoft*-approved coursework in Windows XP and Server 2003. *This course is also available on-line.*

Exploring Health Sciences 1 credit

Exploring Health Sciences introduces the student to all health care careers and develops basic skills common to all health and medical sciences. It is recommended as the first course for other health and medical sciences courses. The course focuses on exploring all health occupations, communication skills, safety, first aid, and CPR. *(This one credit course is part one of the two credit course formerly known as Medical Health Technologies 1. Exploring the Language of Medicine can be taken concurrently.)*

Engineering Physics 1 credit

Engineering Physics is the equivalent of Physics II and earns one science credit. The course is intended for students anticipating further studies in science, engineering, or technology. The students perform in-depth analysis of their data relating to laboratory exercises. Students will review the algebraic and trigonometric calculations involved in mechanics, electronics, thermodynamics, and fluid systems. Through the use of computer technology, students will gather, analyze and present data, perform simulation studies, and access information via the Internet. The various fields of engineering (mechanical, electrical, systems, and aeronautical) will be explored with an emphasis on college/career opportunities. Students pursue independent and team projects, some of which are entered into regional and national contests.

Exploring the Language of Medicine 1 credit

This course is designed to help students learn health care language and is presented in logical order, beginning with each body system's anatomy and physiology and progressing through pathology, diagnostic procedures, therapeutic interventions, and pharmacology. Concepts, terms, and abbreviations are also presented to the students. *(This one credit course is part two of the two credit course formerly known as Medical Health Technologies 1. Exploring Health Sciences can be taken concurrently.)*

Cisco 2 credits

Students learn how to design, install, configure, operate and troubleshoot simple and complex computer networks. Topics in network architecture, industry standards and communications protocols, networking devices (such as routers and switches), media selection, topologies, data transmission and cabling for local area networks (LANs) and wide area networks (WANs) are included. This course is designed to help students prepare for the Cisco Certified Network Associate (CCNA) certification. *This course is also available on-line. Formerly known as Network Design & Engineering*

Pharmacy Technician 2 credits

This course includes both classroom and clinical pharmacy experiences. Students learn the competencies needed to become pharmacy technicians. They also study about the many career paths available in the pharmaceutical field. Students are prepared for *Registered Pharmacy Technician* certification from the Virginia Board of Pharmacy.



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Advanced Health Sciences 2 credits

This course allows the student to develop advanced skills and techniques used in a medical setting. Students study clinical and administrative duties of a medical assistant, delivery of medications, and gerontology. Clinical internships may occur in physicians' offices and hospital settings. Certifications in American Heart Association *BLS Healthcare Provider CPR/AED* are offered. (Formerly known as *Medical Health Technologies 2.*)



Air Force Junior ROTC 2 credits

The AFJROTC Foundations and AFJROTC Advanced classes condense the standard four-year AFJROTC program into a comprehensive two-year program. Topics include the history of air power, the science of flight, exploration of space, and leadership education including drill and ceremonies, communication skills, and interpersonal relationships. Students also learn how to complete a resume, first aid, and military customs and courtesies. Students who successfully complete the AFJROTC program are eligible for ROTC scholarships, appointments to the military academies, and pay and seniority benefits for those enlisting in the military.



Animal Science 2 credits

The Animal Science Program contains two course levels designed to prepare students for a career in an animal related field. These 2-credit classes prepare students to work in animal related businesses such as: veterinary hospitals, kennels, pet shops and grooming shops. Students offer grooming services to pets of community members two days a week. Instruction is enhanced through field trips, professional guest speakers, and demonstrations. In addition, students can develop leadership skills in the co-curricular SkillsUSA Program



Auto Collision Service 2 credits

The Auto Collision Service Program is a two-year program designed to give a complete overview of the Auto Collision Service Industry. The two-credit class introduces students to all areas of the industry with emphasis on safety, proper procedure, and quality workmanship. Students gain the skills and knowledge needed to obtain entry-level employment in this field. The curriculum and laboratory practices defined by the Inter-Industry Conference on Auto Collision Repair (I-Car) will include working with the

following: fiberglass, metals, plastics, automotive paint refinishing products, welding and other composites.



Auto Technology 2 credits

Students study the eight major systems of the automobile, related tools and equipment, and the automotive industry. An emphasis will be placed on diagnosing systems, developing troubleshooting skills, and the safe use of laboratory equipment. Students will perform technical operations using diagnostic equipment, scanners, multi-meters, and a computerized data information system during laboratory procedures that are defined by National Automotive Technology Education Foundation (NATEF). Major topics include: engine performance, brakes, electrical systems. In addition, students will be tested on the Automotive Service Excellence (ASE) criteria. As an option, many students will have an opportunity to participate in local internship experiences.



Biotechnology Foundations 1 credit

Biotechnology foundations focuses on the emerging technologies related to biology and biological science. The central theme is the integration of technological systems as they relate to living organisms. The focus is to understand, maintain, and improve technological systems that are used in conjunction with biological organisms for specific purposes. Student activities include bioprocessing, genetic engineering, medicine, biomechanical systems, forensics, and the environment. *This class is offered through CTHS and is not an Academy class. Transportation may be available to feeder schools on Academy shuttles.*



A+ 2 credits

The A+ Computer Technology program is designed for students interested in developing microcomputer building/repair skills and related knowledge. This course provides for a successful transition into the computer service technician field and other careers in the computer industry. The emphasis of the class will be placed on building, maintaining, and servicing computers and related peripheral equipment. Students who are successful in this course will be encouraged to take the CompTIA A+ Certification Exam. This course is competency based, utilizing computer based training systems

(simulated A+ test allows students to practice). Computer hardware lab exercises, with extensive textbook reading and worksheets, will be required.

(Formerly know as Computer Systems Technology)



Construction Management 1 credit

The Construction Management curriculum will prepare students to critically address the present and evolving needs of the construction industry. To perform successfully in the construction industry, students must develop an understanding of the technical aspects of construction while applying useful construction management practices and tools to maintain control and provide informed, optimal decisions. The focus of the program is on understanding the processes of construction technology, construction management, and production management.



Construction Technologies 2 credits

The Construction Technologies program is a two-year course of study designed for students to develop skills leading to careers in the construction industry +/- or postsecondary education. Students learn the principles and technologies of residential and light commercial construction. The program emphasizes layout, construction materials, construction methods, cost estimation, project management, and construction safety. In addition, students develop leadership skills and compete in the SkillsUSA program.



Cosmetology 2 credits

The two-year Cosmetology program provides an overview of the Cosmetology field and the opportunity to earn the state Cosmetology license. Students learn how to care for hair, skin and nails. Topics include basic hygiene, sanitation, styling, facials, makeup, manicure and pedicure, personal grooming, and fashion. The course also includes topics on the anatomy of the head, face, neck and arms. In a laboratory setting, students learn skills in hair styling and cutting, permanent waving, hair coloring, scalp and facial treatment, and manicures with an emphasis on safety, sanitation, professional ethics, and quality work. Students prepare for the Virginia state licensing exam by working with clients in a full-service salon.



Criminal Justice 2 credits

The Criminal Justice Program is designed to provide students with basic skills and technical knowledge needed to further their development within this dynamic field of study. Today's society demands that those involved in administration of justice are highly trained in all aspects of the field. Specific areas of training will be provided in criminal law and investigation, security training, communications, emergency response, crimes, search and seizures, arrests, crime prevention, court procedure, and police operations. The program is structured to give students a strong academic background with the skills and knowledge necessary to meet the needs of a career in any of the cited fields. In addition, experts from various agencies provide in-depth information and experiences.



Culinary Arts 2 credits

This course is dedicated to providing students a working knowledge of classical culinary techniques through lecture, hands-on experience, and projects. The students will learn the basic skills needed for a career in the food service industry. Units in sanitation, hot food production, meat identification and fabrication, pantry, breakfast cookery, purchasing, and basic culinary skills are offered. In addition, students operate a restaurant and catering business that gives them experiences in menu selection, meal preparation, and management. The Culinary Arts program is 70% hands-on and 30% classroom/theory. Designed on the classic French Hotel Brigade System, students work stations during production, rotating every two weeks.



Dental Careers 2 credits

The two-year Dental Careers program introduces students to careers in the dental health field. The program's academic content includes general health occupations topics as well as a general overview of specific dental topics. In addition, students learn clinical skills necessary to perform as a dental assistant. The skills are practiced in a simulated office setting. Second year students may be certified in dental radiology safety and may participate in an internship.

For more information contact:
Chantilly Academy at (703)222-7460
Or your base school counselor