



November 19, 2008

Dear Principal:

We are looking forward to the opportunity to partner with your school for interactive videoconference (IVC) distance learning for the 2009-2010 school year. Our NCSSM courses are available to all high schools that receive Video Network Service from NC ITS.

We have revised our course registration procedures, and we are circulating the 2009-2010 course descriptions early. Your Guidance Department and Distance Education Facilitator have been mailed these materials.

**We ask that your counseling office identify the NCSSM courses your school would like to receive in 2009-2010 and that you include these descriptions in the course catalog you give to all your students for 2009-2010 registration. An electronic copy of the course descriptions is available online at [www.dlt.ncssm.edu/distance\\_learning](http://www.dlt.ncssm.edu/distance_learning).**

By February 6, 2009, you will receive the NCSSM Distance Education 2009-2010 Course Request Form. To complete the form, fill in the names of the courses requested, the preferred time, and the number of students who have registered to take the class. The Course Request Form is due March 2, 2009.

We will review all course requests received by March 2. By March 23, 2009 we will contact your designated Distance Education contact to confirm the courses and times we are able to offer your school. By changing our registration process we hope to increase participation by your students in our courses and eliminate your having to reschedule students to be included in our IVC classes.

Please consider in your distance learning curriculum planning that:

- Videoconferencing provides an environment most similar to the traditional classroom
- Class sessions are all recorded enabling student access if they miss class or need to review content
- NCSSM videoconferencing courses are offered with no tuition costs
- NCSSM videoconferencing courses are taught by instructors who have at minimum a masters degree in their subject area and who are accustomed to teaching high school students

NCSSM Distance Learning is enthusiastically committed to fulfill its mandated outreach mission to the State. Please do not hesitate to contact me or my staff for additional information.

Sincerely,

Anna DeConti, Dean  
Distance Education and Extended Programs

CC: Head of Counseling and Distance Education facilitator  
Enclosures: 2009-2010 Course Descriptions

*A constituent institution of the University of North Carolina*

---

P.O. Box 2418 • 1219 Broad Street • Durham, North Carolina 27715  
919-416-2600 • Fax: 919-416-2890 • [www.ncssm.edu](http://www.ncssm.edu)

**2009-2010**  
**North Carolina School of Science and Mathematics**  
**Distance Education Course Descriptions**

**SCIENCE**

**Honors Forensic Science** (Fall & Spring semesters)

**Time:** First Block in the Fall, First and Third Block in the Spring

This course focuses on crime scene investigation, including evidence collection, processing a scene, and lab techniques used to decipher and incriminate the wrongdoer. Through lab work, field trips, demonstrations by experts, and guest speakers, students explore major areas of forensic science: fingerprinting, shoe and tire impressions, identification of hair, fibers and glass fragments, DNA; application of force and motion from blood splatters and tire skids; and forensic anthropology (the study of bone structures and features).

**Prerequisite:** Completion of Biology I and completion of Algebra II

**Materials requirements:** A \$20 per student consumable materials fee will be invoiced at the start of the semester. Each student must have a graphing calculator (TI-83, TI-84 or TI-89) that they may take home. Books and some equipment on loan from NCSSM; schools are responsible for materials. A list of additional needed materials will be provided.

**Site requirements:** Students must have computer access to Internet in DL classroom and Facilitator assistance to set up labs.

**Recommended weight:** Honors

**Honors Genetics and Biotechnology** (Fall & Spring semesters)

**Time:** First and Third Block in the Fall, First and Fourth Block in the Spring

What do crime scene investigations, agriculture, medicine, conservation biology and manufacturing have in common? They have all been revolutionized by biotechnology! Almost every day we read about new developments in the rapidly changing fields of genetics and DNA-based biotechnology. In this course, students will first explore classical genetics and then move onto examining the structure and function of DNA and proteins. With state-of-the-art laboratory experiments, students will analyze DNA fingerprints from a crime scene, genetically transform bacteria and investigate their own DNA! Finally, they will survey the applications of biotechnology in many diverse fields and discuss in depth how biotechnology is changing our daily lives and our future. With the decline of traditional manufacturing in North Carolina, biotechnology is positioned to become a vital part of North Carolina's 21<sup>st</sup> century economy.

**Prerequisite:** Completion of Biology I with a B or higher and completion of Algebra II.

**Materials requirements:** A \$20 per student consumable materials fee will be invoiced at the start of the semester. Books and curricular materials on loan from NCSSM

**Site requirements:** Students must have computer access to Internet in DL classroom and Facilitator assistance to set up labs.

**Recommended weight:** Honors

**Honors Physics** (Fall semester only)

**Time:** Third Block

This course is a hands-on, inquiry based introductory course which combines both "conceptual" and "mathematical" approaches to learning physics. The course covers the laws of mechanics and their applications. Students will learn to solve real problems by investigating real systems. Investigations will cover physics topics that are fun and engaging for the students. Students will design experiments, use accurate measuring equipment and construct and test conclusions based on accurate data.

**Prerequisite:** Completion of Algebra II with a C or higher

**Materials:** A \$20 per student consumable materials fee will be invoiced at the start of the semester. Each student must have a graphing calculator (TI-83, TI-84 or TI-89) that they may take home. Books and curricular materials on loan from NCSSM

**Site Requirements:** Students must have computer access to Internet in DL classroom

**Recommended weight:** Honors

## MATHEMATICS

### Honors Calculus/AP Calculus AB Course (year-long)

#### **Time: Third Block**

This course is rich in technology and applications, and prepares students for the AP Calculus AB Exam. AP Calculus develops the student's understanding of the concepts of calculus (functions, graphs, limits, derivatives and integrals) and provides experience with methods and applications. The course encourages the geometric, numerical, analytical, and verbal expression of concepts, results, and problems.

**Prerequisite:** Completion of Precalculus with an "A" and the recommendation of the math teacher. Students should have a strong background in algebra and functions, including polynomial, exponential, logarithmic, and trigonometric. They should also be familiar with numerical, graphical, algebraic and verbal problem analysis – with or without a calculator. **\*\*Schools will be asked to supply the following student information: PSAT score, EOC Algebra II (raw or adjusted score), Precalculus teacher recommendation**

**Material requirements:** Each student must have a graphing calculator (TI Inspire, TI-89 preferred, TI-83+, TI-84 acceptable) that they may take home. Books and curricular materials on loan from NCSSM

**Site requirements:** Students must have computer access to Internet in DL classroom

**Recommended weight:** Honors first semester, AP second semester

### Discrete Mathematics (Fall semester only)

#### **Time: Second Block**

This course offers an overview of many applications of mathematics, especially in the social and management sciences. Topics covered include a selection of the following: fair division of resources and costs, voting methods, apportionment of legislative bodies, power of voting coalitions, finance, probability with Markov chains, linear programming, game theory, and mathematical models using matrices. Students are expected to be involved in formulating problems, applying the appropriate mathematics to find a solution, and evaluating the solution. Computers and calculators are incorporated as computational and modeling aids.

**Prerequisite:** Completion of Algebra II with a B or better

**Material requirements:** Students must have a graphing calculator (TI-83+ or TI-84 acceptable) that they may take home. Books must be supplied by your school

**Site requirements:** Student access to computer with Internet during class time required weekly

**Recommended weight:** Honors

### Honors Precalculus Trigonometry (Fall semester only)

#### **Time: Second Block**

In conjunction with the Honors Precalculus Algebra this course is designed to provide skill development in order to prepare students for NCSSM Distance Education year-long Honors Calculus/AP Calculus course sequence. Precalculus topics include: the six trigonometric functions and their inverses, transformations, sinusoids, equation solving, identities, solving triangles, both right and oblique, polar graphs and parametric equations. A heavy emphasis will be placed on problem solving.

**Prerequisite:** Students should have the following: an "A" in Algebra II (a 4 on the EOC), recommendation by the Algebra II teacher

**Material requirements:** Students must have a graphing calculator (TI Nspire, TI-89 preferred, TI-83+, TI-84 acceptable) that they may take home. Books and curricular materials on loan from NCSSM

**Site requirements:** Students must have computer access to Internet in DL classroom

**Recommended weight:** Honors

### **Honors Precalculus Algebra (Spring semester only)**

#### **Time: Second Block**

In conjunction with the Honors Precalculus Trigonometry, this course is designed to provide skill development in order to prepare students for NCSSM Distance Education year-long Honors Calculus/AP Calculus course sequence. Precalculus topics include: (functions power, polynomial, rational, radical, exponential and logarithmic) and their transformations, data analysis as it applies to functions, iteration, sequences and series and parametric equations. A heavy emphasis will be placed on problem solving.

**Prerequisite:** Students should have the following: an “A” in Algebra II (a 4 on the EOC), recommendation by the Algebra II teacher

**Material requirements:** Students must have a graphing calculator (TI Nspire, TI-89 preferred, TI-83+, TI-84 acceptable) that they may take home. Books and curricular materials on loan from NCSSM

**Site requirements:** Students must have computer access to Internet in DL classroom

**Recommended weight:** Honors

### **Honors Statistics/AP Statistics (year-long)**

#### **Time: Second Block**

This year long course covers the content of a typical introductory college course in statistics. In colleges and universities, the number of students who take a statistics course is almost as large as the number of students who take a calculus course. (At least one statistics course is typically required for majors such as engineering, psychology, sociology, health science, mathematics, and business.) This course will be taught as two one-semester courses. The first semester will provide an overview and introduction to statistics, and introduce students to the major concepts and the tools for collecting, analyzing, and drawing conclusions from data. The second semester will extend the development of first semester topics and prepare students for the AP exam. . **\*\*Schools will be asked to supply the following student information: PSAT score, EOC Algebra II (raw or adjusted score), Algebra II teacher recommendation**

**Prerequisite:** Students must have completed a course beyond Algebra II with a C average or better and have satisfactory algebra skills. They must also possess sufficient mathematical maturity and quantitative reasoning ability.

**Material requirements:** Each student must have a TI-83+ or TI-84 (preferred) graphing calculator that they may take home. Books and curricular materials on loan from NCSSM

**Site requirements:** Access to a computer lab is required.

**Recommended weight:** Honors first semester, AP second semester

## **HUMANITIES**

### **Honors African American Studies (Spring semester only)**

#### **Time: First Block**

This interdisciplinary course provides an introduction to African American history, literature, and culture. Students examine significant social, political, economic, and religious issues as well as issues of identity in the lives of African Americans from the sixteenth century to the present. In addition to readings in historical backgrounds and documents, students explore texts ranging from slave narratives, folktales, and spirituals to the works of writers, artists, and musicians during the Harlem Renaissance to contemporary works by such writers as Alice Walker and Henry Lewis Gates and filmmaker Spike Lee. Through a variety of assignments and activities, students continue to develop their skills in reading, speaking, and research, with special emphasis on the writing process.

**Prerequisite:** None

**Materials:** Books must be supplied by your school

**Site requirements:** Occasional student access to computer with Internet during class time

**Recommended weight:** Honors

## **Honors Composition: A Study of American Conflict (Fall semester only)**

### **Time: First Block**

Through readings, art, cartoons and film students will work together to develop an understanding of how conflict and the methods of addressing that conflict have shaped the American identity. How internal conflict and power struggles have been more transformative than wars in our understanding of what it means to live, work and exist in contemporary America. Some topics will include:

- Contact between the Native Americans and Puritans (it wasn't all pumpkin pie and Thanksgiving)
- The Debate over Slavery (How you defend the indefensible?)
- The "Woman's Sphere" (Where exactly is a "woman's place"? Why?)
- Wealth, Work and Class Conflict (The Haves and the Have Nots)
- Japanese Internment and Cultural Identity (American Concentration Camps in the land of the free)
- Policy and Protest in the Vietnam War (What are we fighting for? Don't ask me...)

Students will explore these topics through analytical discussion, research and composition in a hybrid environment (IVC and online). Students should be self-motivated.

**Prerequisites:** Students must have taken Civics and Economics. It would be helpful but not mandatory if students have taken U.S. History.

**Materials:** Books must be supplied by your school.

**Site requirements:** Computers with Internet access available in IVC classroom and for homework

**Recommended weight:** Honors

## **Honors Mandarin Chinese I/Honors Mandarin Chinese II (year-long)**

### **Time: Fourth Block**

Emphasis in this course is on the fundamentals for learning to speak, understand, read, and write Mandarin Chinese. Students will learn pinyin, basic pronunciation skills, approximately one hundred Chinese characters, and eight to ten grammatical structures. There will be continued emphasis on speaking and writing as students begin focusing on translation activities. Cultural and social aspects are also explored, with emphasis on the Chinese Diaspora in our own community.

**Prerequisite:** Recommendation by school counselor for Mandarin Chinese I; C or better in the first semester Chinese I course to continue to the Chinese II level in second semester

**Materials:** Books must be purchased at cost by schools from NCSSM

**Site requirements:** Occasional student access to computer with Internet during class time.

**Recommended weight:** Honors

## **Ethics and Leadership (Fall and Spring semesters)**

### **Time: Second Block in the Fall, Third Block in the Spring**

This course is ideal for students interested in careers in Medicine, Business, or Psychology. Students will explore introductory philosophical ethical frameworks and their relationships to morality and decision making. Students will apply leadership and ethical theory to small scale issues of importance in schools (cheating, lying, stealing, and plagiarism) along with large scale modern ethical dilemmas such as euthanasia, organ donation, cloning and animal rights. Case studies in areas such as research policies involving humans, business practices, racism, genetics and global stewardship will help students develop a personal ethical framework.

**Prerequisite:** None

**Materials:** Books must be supplied by your school

**Site requirements:** Students must have computer access to Internet in DL classroom

**Recommended weight:** Honors

### **Honors Music Appreciation (Fall semester only)**

#### **Time: Fourth Block**

This course provides opportunities to become familiar with the basic elements of music. Through a chronological exploration of style periods in Western music, this course will increase students' appreciation for the music they already know and love. Students learn to aurally recognize and comprehend the various elements of music that define style, genre, and period, and develop the vocabulary to discuss them. Listening materials are drawn from a variety of sources: classical music, non-Western music, American popular music (particularly jazz, country, rock, hip-hop), and the American folk tradition. The course also gives an overview of some popular and traditional world music. The course assumes the student has no knowledge of musical notation.

**Prerequisite:** None

**Materials:** Books must be supplied by your school

**Site requirements:** Occasional student access to computer with Internet during class time

**Recommended weight:** Honors

### **Honors Psychology (Fall & Spring semesters)**

#### **Time: Third Block in the Fall, Second Block in the Spring**

This introductory course includes topics such as: developmental psychology, neural structure of the human body, learning and memory, perception, stress and conflict, abnormal behavior, family interactions, how to understand and manage emotions, the nature of consciousness, and exploring the meaning of dreams. This course requires active class participation, and students are encouraged to relate the material in the course with their own life experiences. Guest lecturers will present topics of their particular expertise.

**Prerequisite:** None

**Materials:** Books must be supplied by your school

**Site requirements:** Occasional student access to computer with Internet during class time

**Recommended weight:** Honors

### **Honors US History/AP US History (year-long)**

#### **Time: First Block**

This course examines critical issues in American history from the Colonial Era to the present such as race relations, ethnic tensions, conflict (both domestic and foreign), management-worker relations, the role of government in the economy and the lives of its citizens, and the meaning of democracy. Students are expected to analyze and critically review a variety of materials including texts, print and non-print primary sources, and interpretive readings. Emphasis is placed on developing writing and rhetoric skills. Preparation for the US History EOC test is also emphasized.

**Prerequisite:** **\*\*Schools will be asked to supply the following student information: PSAT score, EOC Civics test (raw or adjusted score), Social studies teacher recommendation**

**Materials:** Books and curricular materials on loan from NCSSM

**Site requirements:** Students must have computer access to Internet in DL classroom

**Recommended weight:** Honors first semester, AP second semester

## CHARACTERISTICS OF A SUCCESSFUL DISTANCE LEARNER

According to our Distance Education faculty: “*A successful distance learner is .....*”

- enthusiastic about the subject matter
- willing to learn and is motivated to study
- a responsible independent learner – requires maturity and self-motivation
- interested in making connections to their own lives
- confident enough to speak up! –not shy about asking questions when they don’t understand (including outside of class ) and volunteering ideas and solutions when responses are solicited by the teacher in a very public and uncomfortable (at least initially) forum
- willing to take “learning risks” including sharing work over the air or to engage in hands- on classroom activities that he/she might not feel comfortable with
- hard-working and takes pride in doing excellent work – student is willing and has the time available to prepare carefully before class and to complete their homework assignments, about 30 minutes a night
- self-disciplined and has the study skills (including time management) necessary to learn without the physical presence of the instructor
- one who has the prerequisite preparation for the course
- able to use basic PC technology - e.g. search for academically appropriate web sites, add attachments to emails, navigate web sites, mark favorite sites
- honest – many times students are trusted to complete their own work and to NOT share their work on various assignments
- patient with technology – it breaks, sometimes often
- respectful of the other students in their “joint” classroom (especially in the multi-school courses) and show understanding of the problems other sites have, knowing that their site will have their own problems eventually
- willing and able to come to all classes! - it’s very hard to make up missed DL classes
- able to pay attention to a monitor
- able to work without letting other students distract them