



**THE MISSISSIPPI
SCHOOL FOR
MATHEMATICS & SCIENCE**

2012-2013

COURSE CATALOG

An Opportunity for Excellence

**The
Mississippi
School for
Mathematics and Science**

**Course Catalog
2012-2013**

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THE MISSISSIPPI SCHOOL FOR MATHEMATICS & SCIENCE

Introduction

The Mississippi School for Mathematics and Science graduation requirements are designed to give each student a well-balanced program with a broad range of electives and advanced study options. Electives, if wisely selected, will help the student explore and develop his/her own interests and abilities. We hope that this guide will help the student and his/her parents plan an exceptional program of study while at MSMS. At the critical decision points in the final two years of high school, the student should periodically review his/her educational goals and thoughtfully develop a program of studies that will help to achieve these goals.

A few guidelines to be followed are:

- Keep minimum and maximum course loads in mind.
- Know MSMS graduation requirements.
- Consider expectations and admissions criteria of prospective universities.
- Before selecting a course, check the description to be sure it fits your needs, interests, and abilities -- and that you have completed the prerequisite course work necessary for enrollment.
- Plan ahead -- develop a two-year plan of study

The course offerings described in the MSMS Course Catalog have been developed for the 2012-2013 school year. They have been designed to provide both depth and breadth in the instructional program. An effort is made to accommodate student interest, with final decisions on any year's course offerings based on staff availability and satisfaction of minimum enrollment requirements.

This course catalog is intended to provide guidance in developing a two-year plan of study and course selection. Policies specific to academic and residential life will be printed in the 2012-2013 MSMS Student Handbook.

SPECIAL ACADEMIC PROGRAMS

Correspondence Courses/Virtual Courses

Mississippi Accountability Standards and MSMS allow no more than one (1) Carnegie unit to be earned through completion of an approved correspondence course(s). It is recommended that students complete correspondence courses prior to attending MSMS. However, students who have approval to be enrolled in a ½ credit correspondence course while at MSMS must complete the course in one semester. It is recommended that 1 credit courses be completed in one semester but with approval students in 1 credit courses may have an extended time period, not to exceed two semesters. **Neither correspondence credit nor virtual school credit will apply to the 13 Carnegie units required to be earned at MSMS.**

Dual Credit

MSMS currently offers specific courses in English, Mathematics, and Physics on our campus which MUW accepts for dual credit. Dual credit agreements may be developed or revised following publication of this course catalog; students and their parents will be notified of revised dual credit agreements via an addendum to this catalog. MSMS students who are enrolled in approved dual credit courses must (1) meet the early admission standards specified in the dual credit agreement, (2) meet all course prerequisites as specified, and (3) complete the appropriate college admissions paperwork. Students taking dual credit courses will receive a grade on both the MSMS high school transcript and the transcript of the college or university awarding credit. A student who successfully completes a dual credit course will earn both high school and college credit. If a student leaves MSMS, or for any reason drops a Dual Credit class, it is the responsibility of the student to drop the class from the University affiliate. Failure to do so could result in an "F" on the University transcript.

Note: For dual credit, dual enrollment students, the MSMS first semester grade will serve as the final grade for the first semester university course; the MSMS second semester grade will serve as the final grade for the second semester university course.

Dual Enrollment

With the approval of the Director of Academic Affairs, students who meet early admission standards at MUW and complete the appropriate admission paperwork are eligible to take classes at MUW for college credit. Juniors are allowed to be dual enrolled at MUW in the spring semester. A student who successfully completes a dual enrollment course will earn college credit only.

IMPORTANT NOTE regarding dual credit and dual

enrollment: By enrolling in more than 29 college credit hours, a student may be considered a sophomore at some universities, thus impacting eligibility for freshman scholarships (See your Academic Counselor for more information.) Dual Credit and Dual Enrollment course grades are included in respective colleges' GPA and will affect scholarship eligibility.

Special Topics

Special Topics are offered on a limited basis to students who have a strong academic background and an interest in intensive supervised study beyond scheduled course offerings. Any course that is available in the Master Schedule of classes **cannot** be taken as an independent study at MSMS. **Special Topics are taken for credit over and beyond MSMS graduation requirements.** Other options will be considered only in special circumstances. A student interested in independent studies must initiate a *Request for Special Topics* available from his/her counselor. A study plan, agreed upon by teacher, student, counselor, and approved by the Director of Academic Affairs, must be in place prior to the start of the study.

Independent Study

A course or courses listed in the course catalog that cannot be scheduled by a student. Students interested in an independent study must have the approval of the instructor and Director for Academic Affairs, **Any course that can be scheduled cannot be taken as an independent study at MSMS.**

Interventions

The academic progress of all MSMS students is monitored throughout the year. A Student Concerns committee meets each week (other than when the Academic/Behavioral Review Committee meets) to discuss actions that can be taken to assist students who are on probation or for students who may begin to struggle during the nine weeks. The Student Concerns Committee is comprised of administrators, counselors, staff, and faculty who want to attend the meetings. The academic/Behavioral Review Committee meets every 9 weeks to determine the status of students who have been identified with academic and/or behavioral issues. The Academic/Behavioral Review Committee consists of essentially the same individuals as the Student Concerns committee: administrators, counselors, staff, and faculty. The only difference is that faculty members must be present on the Academic/Behavioral Review

Committee. Students will be placed on academic probation and/or an Academic Intervention Plan will be devised and implemented as needed to meet individual student needs. The purpose of the review will be to determine which students are not successful in their learning and/or living environment and to make recommendations for strategies to assist those students. Upon review of student grades, academic probationary status is assigned if a student:

- 1) has earned two or more failing grades (0-69) during any 9 week grading period;
- 2) has earned a semester grade of NC (no credit) in one course;
- 3) has earned one final grade of NC;
- 4) has more than one INC (incomplete) at the end of any 9 week grading period;
- 5) has not worked to his/her potential as reflected by grades, attendance, and/or behavior;
- 6) has been recommended for consideration by a teacher, counselor, or parent.

Students will remain on academic probation for a minimum of 4 ½ weeks. Students who are not performing up to expectations and/or who are on academic probation will have specific strategies developed to assist in their academic progress which may include, but are not limited to:

- 1) assignment to required tutorials;
- 2) assignment to required study hours/suspension of privilege plan;
- 3) assignment to ISP or Required Studies;
- 4) curtailment of social and/or extracurricular activities;
- 5) development of a plan of improvement.

Attending MSMS is considered a special opportunity and. In keeping with the MSMS philosophy, success is an expected academic outcome for students. Students will not be extended an invitation to return to MSMS and must reenroll at their home school for the remainder of their secondary education if any one of the following applies:

- 1) Students receiving three or more grades of NC (no credit) that are below 60% at the end of the first nine weeks;
- 2) Students receiving two or more NC's, INC's (incompletes), or a combination of the two at the end of the first semester (this includes semester and year-long courses)
- 3) Juniors receiving two NC's, INC's, or a combination of the two at the end of the second semester (this includes semester and year-long courses);
- 4) Juniors failing to earn six credits at the end of the junior year;
- 5) Juniors who, due to failure of one or more courses, will be unable to meet MSMS graduation requirements (for example, a student

with no foreign language credit from his/her home school who fails the first year of a foreign language as a junior cannot take two years of foreign language concurrently as a senior to meet the MSMS graduation requirement of two Carnegie units of foreign language); **Students must successfully complete two years of the same foreign language to graduate from MSMS.**

- 6) Students failing Algebra II
- 7) Juniors who fail to earn credit for Foundations of Higher Math prior to the senior year;
- 8) Seniors, at the end of the first semester, who have failed coursework that prohibits their being able to meet MSMS graduation requirements in the remaining semester of their senior year;
- 9) Students who have been placed on probation on two or more occasions;
- 10) Students earning three or more C's as final grades in core classes;
- 11) Students demonstrating inappropriate behavior (including excessive tardies and/or absences) in keeping with the school's academic or behavioral expectations.

During the summer between a student's junior and senior years, an assessment will be made by school officials based on behavioral and academic performance, as well as other factors independently considered, regarding the student's continuation at MSMS.

Parents are expected to contact teachers at least four times per semester for progress report information. Parents are also asked to view their children's grades through Power School. A session will be held during orientation to assist parents with setting up their Power School accounts to allow them to receive weekly grade and behavioral reports.

Summer School

Juniors who fail Foundations (MA 235) during their junior year must take and pass a Pre-Calculus course at a community college or university during the 1st summer session following their junior year. The student is also expected to pass the MSMS final examination in the course. All expenses for the college course will be the responsibility of the parents/guardians. **Juniors who fail Foundations in the summer and/or who do not pass the MSMS final examination in the course will not be allowed to return to MSMS their senior year.**

At the discretion of the Director for Academic Affairs, MSMS may accept summer school credit or award placement for certain **pre-approved** courses taken at a community college or university. **CREDIT WILL NOT BE ACCEPTED FROM ANOTHER HIGH SCHOOL.** Summer courses taken before official enrollment in the fall at MSMS will become a part of the student's home school transcript.

Summer courses for remedial credit:

- Any student who has failed a course at MSMS must obtain written approval from the Director for Academic Affairs for any plans to make up credit for the failed course by attending summer school at a community college or university. This approval must be received before registering for summer school. The student must provide course descriptions from the catalog of the institution he/she wants to attend and course syllabi. The administration of MSMS, with input from the appropriate department, will make all decisions regarding the specific course(s) and the length of the course(s) (one or two semesters) to be taken for MSMS credit. After completing the course(s) and before fall classes begin at MSMS, the student will also be expected to pass the MSMS final examination in the course(s) for which credit is being sought.
- No permission will be given to receive MSMS credit for a summer course to be used as a substitute for an MSMS course unless the student has attempted the MSMS course and received a failing grade.

Summer courses for placement (no credit awarded):

- Students who have completed the junior year and want to attend summer school in order to meet prerequisite requirements for a more advanced course in the MSMS curriculum will need approval of the counselor, the academic department involved, and the Director for Academic Affairs. This approval should be gained well before leaving the campus at the end of the junior year. The student must provide course descriptions from the catalog of the institution he/she wants to attend and course syllabi. After completing the course and before fall classes begin at MSMS, the student will also be expected to pass the MSMS final examination in the course taken in summer school before that course may serve as a prerequisite for a more advanced MSMS course.

GUIDELINES FOR SELECTING COURSES

Registration Process

The registration process begins with a general meeting during which graduation requirements, course offerings, and the registration process are explained. It ends when students have selected their courses for the next school year and returned their registration form to MSMS.

Students who come from a public or private school or program (correspondence, tutorial, or home study) not accredited regionally or by a state board of education must take placement tests in English, Social Studies, Math and Science.

Juniors having questions are encouraged to call MSMS, seek the counsel of faculty members and counselors of their home schools, and confer with their parents. Seniors are asked to discuss their selections with their individual counselors, MSMS faculty members, and their parents.

Subject Area Testing Requirements Mississippi Department of Education

Class of 2012 and 2013

Students in the Class of 2012 and the Class of 2013 must pass the subject area tests in Algebra I, U.S. History from 1877, English II, and Biology I as a requirement for graduation.

State Board Policy 3800 [http://www.mde.k12.ms.us/SBE_policy_manual/3800.htm] outlines the graduation requirements for the Mississippi Subject Area Tests for the following circumstances: when a student has already earned a Carnegie Unit in a course prior to implementation of the new graduation policy, when a student enters a Mississippi public school from another state, private school, or home school, and retesting procedures for when a student fails to pass a required Subject Area Test.

Selecting Courses

The following recommendations are based on prior experience in working with MSMS students. We ask that the student follow these guidelines, although we do realize that each student is an individual with particular abilities and needs. Please use the toll free line (1-800-400-4656) to contact an academic counselor if questions arise.

- Read thoroughly the course descriptions in the Course Catalog, paying particular attention to the necessary prerequisites and amount of credit for each course.
- Read carefully MSMS graduation requirements.
- Schedule required courses first then elective courses, thinking in terms of a two-year plan. It is important that a student consider his/her background, interests, college and career goals, and aptitude.
- The results of placement tests, along with various recommendations, will be sent to the student as soon as possible to facilitate course selection.
- **The student should not enroll in any course for which he/she has already received credit.**
- **Students who have not taken health prior to attending MSMS must complete the course by the end of their junior year.** Health will not count toward the 13 credits required at MSMS.
- Students will be required to enroll in a sufficient number of required and elective courses so that the total number of credits earned at MSMS is at least 13. Only one credit in the Arts may apply toward the 13 MSMS credits required for graduation. No correspondence course or virtual school credits may be used to meet the requirement of 13 MSMS credits.

MSMS GRADUATION REQUIREMENTS CLASSES OF 2013 & 2014

At least 13 credits (Carnegie units) must be earned while enrolled at MSMS. Previous high school, virtual high school, correspondence credit or college credits earned at another institution will not count toward the 13 required MSMS credits. The following **7.5 credits must be earned at MSMS**.

English – Each student is required to earn **two credits** by successfully completing approved English classes each year. Each student must be enrolled in a required English course every semester.

Mathematics – Each student is required to earn **two credits** in mathematics, to include either 1/2 credit in Calculus or 1/2 credit in Statistics.

Science – Each student is required to take and earn one credit in biology, one credit in chemistry, **and** one credit in physics (½ credit must be a mechanics course with the other ½ credit being a waves, electricity & magnetism course) for a total of **three credits**.

Swing Credit (Mathematics/Science Elective) – In addition to the above Mathematics and Science requirements, each student is required to take and earn an additional ½ **credit** of either mathematics, science, robotics, or computer programming.

Social Studies – Specific requirements depend on what the student has previously completed.

Foreign Language – Specific requirements depend on what the student has previously completed.

Health -- Students who have not taken health prior to attending MSMS must complete the course by the end of their junior year.

Fine Arts – 1 credit if not previously completed at your home school.

Physical Education – ½ credit if not previously completed at your home school.

Business & Technology – 1 credit if not previously completed at your home school.

All students must have earned credit in Algebra I and Unified Geometry before entering MSMS. It is strongly recommended that Algebra II be completed also. In the event that a student has completed Algebra I and Algebra II, but does not have a credit for Unified Geometry, the student may be granted provisional admission and must complete a Geometry course either by correspondence, virtual school or summer school offerings. **This credit must be earned before the beginning of the junior year at MSMS.** A course in Unified Geometry will not be taught at MSMS.

The following courses are required for MSMS graduation, but credit may be earned prior to grade 11. Students meeting any of these requirements before enrolling at MSMS will complete elective courses to earn the required total of 13 credits at MSMS.

MSMS Graduation Requirements

| CURRICULUM AREA | CARNEGIE UNITS | REQUIRED COURSES |
|-----------------------|----------------|--|
| ENGLISH | 4 | Courses must require substantial communication skills and may not be compensatory in nature. |
| MATHEMATICS | 4.5 | Algebra I (1 credit) Algebra II (1 credit) Unified Geometry (1 credit) Trigonometry (1/2 credit) Foundations of Higher Math or its equivalent (1/2 credit) Either Calculus or Statistics (1/2 credit) |
| SCIENCE | 4 | Biology I (1 credit) MSMS Biology (1 credit) MSMS Chemistry (1 credit) MSMS Physics (1 credit) |
| SOCIAL STUDIES | 4 | U.S. History (1.0 credit) U.S. Government (1/2 credit) Mississippi Studies (1/2 credit)* World History (1.0 credit) Economics (1/2 credit) Geography (1/2 credit) |
| BUSINESS & TECHNOLOGY | 1 | Computer Applications (1/2 credit) and Keyboarding (1/2 credit) or Computer Discovery in the 8 th grade (1 credit)** |
| HEALTH | ½ | Comprehensive Health or Family and Individual Health |
| PHYSICAL EDUCATION | ½ | Class of 2013 and 2014**** |
| THE ARTS | 1 | Examples: Band, Choral Music, Drama, Drawing, Painting, Sculpture*** |
| FOREIGN LANGUAGE | 2 | Two units of the same foreign language required |
| SWING CREDIT | ½ | Either an MSMS mathematics, science, robotics, or computer programming course |
| OTHER ELECTIVES | 2.5 | Your Choice |
| TOTAL UNITS REQUIRED | 24 ½ | |

* Credit earned for State/Local Government in any other state by an out-of-state student who enters after the sophomore year can stand in lieu of MS Studies. If the student took a State/Local Government course in a grade level that did not award Carnegie unit credit, then any other 1/2 unit social studies course may be accepted.

** Evidence of proficiency in Keyboarding & Computer Apps is accepted in lieu of the required courses if the student earns one unit in an approved Business and Technology course

*** only one credit in the Arts may be applied toward the 13 required MSMS credits

****Students who have received credit in interscholastic athletic activities, band, and ROTC before entering MSMS have fulfilled the physical education requirement.

Recommended Course Load

Juniors

Entering juniors are encouraged to limit their academic credits to 7 ½. The minimum requirement is 7 academic credits for the year. Exceptions to this are assessed on an individual basis and the decision to allow extra courses rests with the Director for Academic Affairs. Students are expected to have no fewer than six academic courses each semester. **Sometimes students mistakenly have registered for seven courses instead of seven credits.**

When second semester begins, the student will be given an opportunity to add additional one-semester courses, contingent upon his/her first semester grades, available seats, and approval of the Director for Academic Affairs. Due to increased time demands, it is recommended that students limit the number of advanced courses taken each year.

Seniors

A minimum of 6 academic credits is required for the senior year. Seniors are advised to consider graduation requirements and their performance as juniors in deciding on the number of courses to select. Pursuit of courses that enhance preparation for a college/university major is suggested.

Students are advised to think in terms of planning a two-year curriculum at MSMS.

Definitions:

Credit: Carnegie Unit

Course: Class

Pre-requisite: A course that must have been taken with credit earned prior to another course.

Co-requisite: A course that must be taken in the same semester or must have been taken prior to another course.

Schedule Changes

Students will have until June 8, 2012 to submit a written request for a change in course selections for the next school year. After June 8, 2012 schedules will be completed and changes will not be made until students arrive in August. Written requests for changes in course selection e-mailed to the appropriate counselor.

Conflicts with the master schedule or an insufficient number of students requesting to take a course may result in one or more alternate course selections appearing on a student's schedule. Students will be notified of conflicts that require selection of additional course offerings. Many MSMS courses are offered as a single section; a conflict matrix is used in placing those sections in the master schedule to meet the requests of the largest number of students. Students who request several of these single section courses should anticipate that one or more may be unavailable due to scheduling conflicts.

Students sign up for courses primarily based on freedom of choice. The school hires teachers, plans facilities, and develops the master schedule around these choices. Therefore, schedule changes will not be considered to enable students to choose teachers or specific periods. All schedule changes are made through the Academic Counselors in the Counseling Center. **Students must follow their schedule until notified in writing of the change.**

Adding and Dropping Courses

Adding a Course

On a space-available basis, students wishing to add courses to their schedules have one week from the first day of class at the beginning of each semester to do so.

Dropping a Course

With approval of the students' Academic Counselor, students will be allowed to drop a course from their schedules during the first four weeks of each semester.

Because year-long courses are taught in 2 semesters and students are evaluated at the end of both semesters, failure to pass either the fall or spring semester will be recorded as "NC" on the student's grade report. A "NC" may affect the student's privilege to return to MSMS and/or to graduate. Students deemed unable or unwilling to accept the commitment necessary to be successful in this special learning environment will be returned to their home school provided that applicable due process protections are afforded the student.

Students are not allowed to drop courses that result in a class load of less than 7 courses for juniors and 6 courses for seniors (A minimum of thirteen (13) credits must be earned while enrolled at MSMS). **Seniors are advised that dropping a course may impact scholarship status – check with your college/university for more detail.**

COURSE OFFERINGS

COURSES

This catalog lists all of those courses that the school is prepared to offer. Since the total enrollment of MSMS is relatively small, it may not be possible or desirable to offer all courses every year. **A sufficient number of students must request a course for the course to be offered.**

COMPUTER SCIENCE

Introduction

We often use tools to aid us in solving problems. The hammer is a hand tool; it amplifies and extends the power of the hand. We can use it to help us solve such problems as building a birdhouse for bluebird or building a Habitat for Humanity home for a member of our community. The computer is also a tool – a mind tool; it amplifies and extends the power of the mind. We can use it to help us solve such diverse problems as regulating the flow of drugs for a patient, generating images of imaginary landscapes, or controlling the flight of jet aircraft. Computer Science is a helping profession; computer programmers help people by constructing software solutions to their problems.

The computer is an especially useful tool because it can be programmed to do many different things. A famous textbook describes Computer Science in its title: *Data Structures + Algorithms = Programs*. More prosaically, we can think of Computer Science as the study of how to solve problems by representing the problems symbolically in a form (data structure) that the computer can utilize, plus recipes (algorithms) describing the sequence of steps necessary to generate a solution to the problem.

The purpose of the Computer Science department is to provide interested MSMS students with the opportunity to explore, understand, and manipulate computer and related technologies.

Because computer use is integrated into most levels of the MSMS curriculum, Computer Science courses are not required to graduation beyond those required by the state of Mississippi. All Computer Science courses are considered elective credit.

Guidelines for Required Computer Science Courses

Several courses are available to those who are interested and/or need additional credit to meet the state requirements for graduation.

Objectives

Within the study of Computer Science, students will be equipped:

- 1) To think clearly about the process of problem-solving;
- 2) To use a modern programming language to solve problems using a computer; and
- 3) To understand how to utilize computer technology to accomplish their goals

CS 701 - Desktop Publishing

Desktop Publishing offers the student the opportunity to use basic computing skills in the production of attractive documents such as a flyer, letterhead, business card, report cover, and newsletter. Graphic design and page layout techniques are emphasized. Students will produce attractive documents that communicate effectively and use proper desktop publishing strategies.

| | |
|---------------|------------|
| Prerequisite: | None |
| Credit: | ½ |
| Length: | 1 semester |

CS 703 – Introduction to Programming

This course provides an introduction to the process of problem solving using a computer programming language. This course will use Python — a powerful, modern, but easy to understand programming language – to provide the student with a solid foundation in both theoretical and practical aspects of programming and problem solving. Exercises will give the student opportunities to work with multimedia programming (graphics, music, the Internet) examples, as well as traditional numeric programming.

Course Objectives:

1. To introduce the principles and practice of software development using a modern object-oriented programming language.

2. To introduce and develop the problem solving skills necessary to construct software solutions to problems.
3. To give the student an understanding of the data structures and control structures available in the target language, and an ability to understand and create common algorithms.

Prerequisite: Algebra II
Credit: $\frac{1}{2}$
Length: 1 semester

CS 704 – Intermediate Programming

This course explores object-oriented problem solving, design, and programming, transitioning the student from Python to C++. It also provides an introduction to common data structures, the design of algorithms, and the analysis of algorithm complexity. Concepts such as error handling and data verification will also be explored. Prerequisites: Intro to Programming or consent of instructor

Prerequisites: Intro to Programming or consent of instructor
Credit: $\frac{1}{2}$
Length: 1 semester

CS 716 – Introduction to Robotics

Description: This course involves the introduction of the study of Robotics. A history of robotics will be presented from Hero to the ASIMO and beyond. Cultural representations and expectations of robots and robotics will be discussed as well. Hands-on labs involving Lego Mindstorm NXT robotics kits will be used to explore the art and science of robotics.

Prerequisite: None
Credit: $\frac{1}{2}$
Length: 1 semester

CS 714 – Site Design: Research and Practicum

This class introduces students to tips, tools, and techniques for designing web sites from the ground up. Topics include site hierarchy, font and color decisions, MacroMedia Dreamweaver, and Flash. Students will apply this knowledge to design and implement a web site on a research topic of their choice.

| | |
|----------------|------------|
| Prerequisites: | None |
| Credit: | ½ |
| Length: | 1 semester |

CS 715 – Web Services

Students design, implement, and manage components of the MSMS Web Site.

| | |
|---------------|-----------------------|
| Prerequisite: | Consent of Instructor |
| Credit: | ½ or 1 |
| Length: | 1 semester or 1 year |

CS 720 – Computer Problems/Special Topics

Computer problems/special topics is an individualized advanced class where students will have the flexibility of choosing their projects or topics of interest. The projects could involve any aspect of modern computing.

| | |
|---------------|---|
| Prerequisite: | Consent of instructor and Director for Academic Affairs |
| Credit: | ½ or 1 (elective credit beyond the required 13.0) |
| Length: | 1 semester or 1 year |

ENGLISH

Introduction

The purpose of the English program at the Mississippi School for Mathematics and Science is to provide students with opportunities for acquiring skills and knowledge to prepare them for successful performance in college English and to enter the college English curriculum at the highest possible level. Upon successful completion of the program, students should have the ability to comprehend, generate, and communicate ideas.

Guidelines for Required English Courses

MSMS requires that English be taken **each semester**. Journalism, Yearbook, Debate, Southern Writers, and Creative Writing are offered to all students but may **NOT** be used to meet graduation requirements in English. **Juniors are required to enroll in either EN 100 (University English I) or EN 101 (Honors English). Seniors are required to enroll in one of the following full year courses: EN 200 (University English II) or EN 214 (Selected Works of British Literature) or EN 216 (World Literature).**

Objectives

Specifically, the objectives of the program are to equip students:

- 1) To comprehend, interpret, evaluate, and use what they read;
- 2) To write well-organized, effective papers;
- 3) To listen effectively and discuss ideas intelligently;
- 4) To appreciate the breadth and depth of their literary heritage;
- 5) To discover how their literary heritage enhances imagination and ethical understanding;
- 6) To recognize how their literary heritage relates to the customs, ideas, and values of today's life and culture; and
- 7) To utilize technology as they integrate reading, writing, speaking, listening, and viewing in English studies.

Seniors are required to take a full year approved 200-level course. (Journalism, Yearbook, Debate, Special Topics, and Creative Writing courses **do not** count toward the English requirement.) Juniors also have the option of taking any of the 100-level courses as electives. Seniors may take any of the 100- or 200-level courses as electives (with the exception of EN 200 and 214). **Registration for courses as electives will depend upon the space necessary to accommodate all students who need courses to meet the English requirement for graduation.**

EN 100 – University English I (College Credit)

Students who take University English I must have a composite score of 25 on the ACT. This course is offered for dual credit. By an articulation agreement with the Mississippi University for Women, students who successfully complete the class will satisfy the requirement for junior English at MSMS and receive six semester hours of college credit: three hours for EN 101 (English Composition) and three hours for EN 204 (Survey of American Literature II). The course is a survey of American literature from the colonial period to the present. It also has a writing component that includes narrative, descriptive, expository, and critical essays, and a research paper.

| | |
|---------------|--|
| Prerequisite: | Junior standing, admission to MUW, and a composite Act score of 25 |
| Credit: | 1 |
| Length: | 1 year |

Note: For EN 100 students, the MSMS first semester grade will serve as the final grade for the first semester university course; the MSMS second semester grade will serve as the final grade for the second semester university course.

EN 101 – Honors English

This course is a survey of American literature from the colonial period to the present. It emphasizes major writers and their relationships to main currents of American thought. Students will complete outside readings, respond to the literature through critical essays and a research paper, and participate in class discussions.

| | |
|---------------|--------|
| Prerequisite: | none |
| Credit: | 1 |
| Length: | 1 year |

EN 130 – Shakespeare I: The Romantic Comedies and Histories

This course is an introduction to the works of William Shakespeare and will concentrate on early plays. Students will read approximately a dozen plays, including The Comedy of Errors, Richard III, and the Henry plays.

Prerequisite: none
Credit: ½
Length: 1 semester

EN 132 – Shakespeare II: The Tragedies and Late Romances

The course will focus on the later plays of Shakespeare. Students will read ten to twelve plays, including Othello, King Lear, Anthony and Cleopatra, and The Tempest.

Prerequisite: none
Credit: ½
Length: 1 semester

EN 134 – Classical Literature I: Epic Poetry

The focus of this course is on the great epic poems of the Greeks and Romans. Students will read The Iliad, The Odyssey, and The Aeneid. This literature provides students with an excellent background for more modern European and American works.

Prerequisite: none
Credit: ½
Length: 1 semester

EN 135 – Classical Literature II: Drama and Philosophy

Students will study the works of the great Greek playwrights: Aeschylus, Sophocles, Euripides, and Aristophanes. Students will also read selections from Greek and Roman philosophers, including Plato, Aristotle, Seneca, and Epictetus.

Prerequisite: none
Credit: ½
Length: 1 semester

EN 150 – Yearbook I

This course is for those students interested in journalism, photography, and art who are willing to take on the task of creating a yearbook for the school. Techniques of article writing, page layout, page design, artwork, photographic composition, and computer publishing will be taught according to the skill and interest of the individual student.

Prerequisite: None
Credit: ½ or 1
Length: 1 semester or 1 year

EN 151 – Yearbook II

In Yearbook II, students will continue their work with article writing, page layout, page design, artwork, photographic composition, and computer publishing. In addition students will assume leadership responsibilities and editorial duties.

Prerequisite: Yearbook I
Credit: ½ or 1
Length: 1 semester or 1 year

EN 152 – Journalism I

In Journalism I, students both produce the school newspaper and study the elements of journalism. Students are introduced to the basic elements of composition, layout, and editing. Students will be expected to become proficient in word processing; article, feature, sports, and editorial writing; using the digital camera or video camera; and retouching pictures using PhotoShop.

Prerequisite: none
Credit: ½ or 1
Length: 1 semester or 1 year

EN 155 – Journalism II

In Journalism II, students will continue their study of journalism. Issues of leadership such as Editor and Internet Editor are the focus of this curriculum. Students will learn and use Quark Passport to layout the newspaper; manage files and articles from Journalism I students; conduct editorial board meetings; make decisions about the content and format of *Vision*, the school newspaper; edit articles and evaluate them for inclusion into the paper; and learn about HTML composition, web site management, and web site publication.

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| Prerequisite: | None |
| Credit: | ½ or 1 |
| Length: | 1 semester or 1 year |

EN 200 – University English II (College Credit)

Students who take University English II must have a 25 composite score on the ACT by the April national test date of the junior year and complete enrollment requirements for MUW students. The course offers senior students an opportunity to receive dual credit in English from MSMS (English IV requirement) and from Mississippi University for Women (EN 201, Survey of English Literature I and EN 202, Survey of English Literature II). The course is a study in chronological order of selected masterpieces representative of different periods of English literature from Beowulf through the modern period. Emphasis is given to the historical, intellectual, and social contexts which produced the literature and on the resulting intertext of literature and society. The course includes collateral readings. Students will write a variety of compositions, including critical essays and a research paper.

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| Prerequisite: | Senior standing, admission to MUW, and an ACT Composite of 25 |
| Credit: | 1 |
| Length: | 1 year |

Note: For EN 200 students, the MSMS first semester grade will serve as the final grade for the first semester university course; the MSMS second semester grade will serve as the final grade for the second semester university course.

EN 214 – Selected Works of British Literature

Students in this yearlong course will read stories, dramas, poems, and essays and view films representative of British and Commonwealth literature. They will consider the works in relation to significant themes and literary movements of the ages which produced them, as well as explore the social and intellectual contexts in which they were written. Special attention will be paid during the second semester to the periods in which the British Empire expanded, then lost, its colonial power. Students will utilize library and Internet sources to produce presentations for class and for compositions, including critical essays and a research paper.

Prerequisite: Senior standing
Credit: 1
Length: 1 year

EN 216 – World Literature

In order to build on the diversity of students at MSMS, World Literature explores in translation the major writers from the main continents, Europe, the Americas, Africa, the subcontinent of India, China, and Japan from approximately 1650 to the present. Students will be encouraged to pick a culture and an era in the culture and develop a paper as well as a presentation about literature works and their background. Readings will include the major genres of literature: poetry, short story, novel, drama, and essay. Authors such as Goethe, Hugo, Pushkin, Tolstoy, Tagore, Lu Xun, Joyce, Borges, Maufouz, Nobuo, Robbe-Grillet, Yehuda, Saadawi, Eileen Chang among others will be selected to illustrate the qualities and culture of their origin. Students will read about 2000 pages, write about 8 essays, a research paper, and complete a spring project for Globe Day.

Prerequisite: Senior standing
Credit: 1
Length: 1 year

EN 240 – Creative Writing I

Students will practice techniques of poetry and short fiction composition as well as write creative non-fiction pieces. Part of the course requirement is to

write for, design, and lay out a literary magazine for both print and electronic publication. Students will prepare manuscripts for local, state, regional, and national competitions. The course will meet for ninety minutes each week for the entire year. Juniors or Seniors may enroll in this course.

Prerequisite: None
Credit: ½ (elective)
Length: 1 year (meets one day per week)

EN 245 – Creative Writing II

Students in Creative Writing II will continue to develop and practice composition techniques for writing poetry, short stories, and descriptive/narrative essays which exhibit mature elements of style: “lucidity, elegance, and individuality.” Students will pursue individualized writing projects in genres they select. Students will also write for, design, and lay out a literary magazine for both print and electronic publication. Students will prepare manuscripts for local, state, regional, and national competitions. The course will meet for ninety minutes each week for the entire year. Juniors or seniors may enroll in this course if they have earned credit in Creative Writing I.

Prerequisite: Creative Writing I and
Recommendation of Instructor
Credit: ½ (elective)
Length: 1 year (meets one day per week)

EN 250 – Special Topics in English

This elective course is based on student interest and may be offered on a one-time or a rotating basis. It may concentrate on a specific topic.

Prerequisite: None
Credit: ½ (elective credit beyond required 13.0)
Length: 1 semester

EN 255 - Debate I

This course provides instruction in how to acquire, analyze, and evaluate information in order to organize effective arguments and provides practice in those arguments. Students will be able to practice extemporaneous speaking, learn the various parts of mock trial by studying both the case and the laws which govern the trial. Students will be able to pose and respond to questions. Students will prepare for mock trial competition. Part of the instruction will be provided by local attorneys.

Prerequisite: None
Credit: ½ (elective)
Length: 1 semester

EN 256 - Debate II

This course provides further instruction in how to acquire, analyze, and evaluate information in order to organize effective arguments and provides practice in those arguments. Students will be able to practice extemporaneous speaking, learn the various parts of mock trial by studying both the case and the laws which govern the trial. Students will learn how to formulate questions in both direct and cross-examination, as well as provide witness responses based upon the case study. Students will prepare for mock trial competition. Part of the instruction will be provided by local attorneys.

Prerequisite: Credit in Debate I
Credit: ½ (elective)
Length: 1 semester

EN 257 - Debate III

This course provides instruction in how to acquire, analyze, and evaluate information in order to organize effective arguments and provides practice in those arguments. Students will be able to practice extemporaneous speaking, learn the various parts of mock trial by studying both the case and the laws which govern the trial. Students will learn all aspects of argument from posing questions, creating and delivering opening speeches and closing arguments, and develop an understanding of all kinds of objections. Students will prepare for mock trial competition. Part of the instruction will be provided by local attorneys.

Prerequisite: Credit in Debate II
Credit: ½ (elective)
Length: 1 semester

FINE AND PERFORMING ARTS

Introduction

The department of Fine and Performing Arts exists to provide the aesthetic stimulation so necessary to human existence. Students are given the opportunity to excel within the contexts of artistic expression and public performance.

Guidelines for Required Fine Arts Courses

MSMS requires students to complete **one credit** of fine arts during grades 9-12. Courses such as chorus, band or art taken during the 9th and/or 10th grades will meet this requirement. If you have never had one of these courses, MSMS has a broad selection from which you may choose. Only one credit of fine arts taken at MSMS may be applied toward the required 13 MSMS credits.

Objectives

After participation in the existing courses, the student will be able:

- 1) To recognize different styles and genres of music;
- 2) To define a body of musical terms and utilize them in performance;
- 3) To apply knowledge to different performing situations;
- 4) To work within an ensemble situation;
- 5) To understand the cooperation needed to attain a common goal;
- 6) To exhibit inner discipline in a rehearsal setting, applicable to other academic pursuits;
- 7) To gain an understanding of aesthetic expression;
- 8) To gain self-confidence through public performance and art exhibits;
- 9) To use, understand, and appreciate various art mediums;
- 10) To develop and explore artistic talents;
- 11) To develop an individual artistic style through the use of various mediums;
- 12) To use and appreciate the elements and principles of design;
- 13) To appreciate all forms of art for their aesthetic value.

FA 521 – Drawing I

Drawing I is a studio course with hands-on learning. This course is a basic introduction to the fundamentals of drawing in dry media. First, the students will work by observing geometric forms and still-life materials. At this time, an emphasis is placed on understanding the importance of value scales. Directional strokes and proportions will also be stressed. Several projects will be assigned in order to reinforce these fundamentals. Upon completion of this course, the student should obtain a good foundation on which to develop his/her talents.

Prerequisite: None
Credit: ½
Length: 1 semester

FA 522 – Drawing II

Drawing II is a studio course with hands-on learning. The course objective is to further the study of dry media on an advanced level of training. The students will learn how to draw the human figure beginning with the separate parts of the face: the eyes, nose, mouth, ears, and hair. Hands and feet studies will follow, ending with gesture drawings and a full pose using a live model. The course will conclude with clayboard, vertical line drawings, and graphic design.

Prerequisite: Drawing I
Credit: ½
Length: 1 semester

FA 523 – Painting I

Painting I is a studio course with hands-on learning. This course contains an introduction to basic painting techniques using the mediums of watercolor, Acrylic, and fabric paint. All projects include the study of the elements and principles of design. The color wheel and various color schemes will be explored and used to create all works of art.

Prerequisite: None
Credit: ½
Length: 1 semester

FA 524 – Painting II

Painting II is a studio course with hands-on learning. This course is a continuation of study in painting techniques using watercolor, acrylic, and oil according to the student's preference. At the beginning of the course, entry level calligraphy will be introduced and illustrated with a painting. Next, an emphasis will be placed on the old masters and how they developed their techniques which led to their unique artistic styles. Students will begin to analyze their own unique styles as they study the focus areas of Impressionism and Post-Impressionism. The final project will be tailored to the student's strengths and preferences as a new artist.

Prerequisite: Painting I
Credit: ½
Length: 1 semester

FA 525 – Sculpture I

Sculpture I is a studio course with hands-on learning. This is a course in the applied principles and practices in sculpture and constructive design. The student will learn the art of carving, modeling, and casting using a wide variety of materials, such as soap, wire, clay, and plaster of Paris. Students will meet the challenges of working with three dimensions instead of only two.

Prerequisite: None
Credit: ½
Length: 1 semester

FA 526 – Sculpture II

Sculpture II is a studio course with hands-on learning. This course continues the study of three-dimensional art, its design, and construction. The materials used will be clay with an emphasis on the modeling of a human face. Learning to create pottery on the potter's wheel along with learning how to create Pop Art will conclude the course. This course encourages practice using the imagination to think outside the box.

Prerequisite: Sculpture I
Credit: ½
Length: 1 semester

FA 531 – Dramatic Performance

This course is designed to explore the theatrical process as an art form. Students will concentrate on designing, creating, and performing original and published works.

Prerequisite: Previous theater experience or course work
Credit: $\frac{1}{2}$
Length: 1 semester

FA 532 – Advanced Dramatic Production

This course enables students interested in theater arts to further increase their knowledge of dramatic production.

Prerequisite: Dramatic Performance and consent of instructor
Credit: $\frac{1}{2}$
Length: 1 semester

FA 508 – Songwriting/Music Technology

This course begins with the study of commercial song structure and writing methods. Students will compose four assigned songs and one freestyle piece throughout the course. The course also includes instruction in digital recording and midi. The course culminates with students recording their original compositions utilizing their knowledge of music technology. Prior knowledge of music theory and the ability to play an instrument is not required but strongly suggested. Course is offered during the spring.

Prerequisite: None
Credit: $\frac{1}{2}$
Length: 1 semester

FA 510 – Instrumental Performance

This course is for those students playing string, electronic, brass, woodwind, and percussion instruments. A broad style of music will be explored and small ensembles may be used from within the group. The class will give at least two performances per semester in order to allow students to experience the creative process that is necessary to perform in a truly collective art.

Prerequisite: None
Credit: ½ (may be repeated)
Length: 1 semester

FA 511 – Choral Performance

The MSMS Concert Singers will survey several styles of performance including classical four part singing, a cappella, jazz, and Broadway styles. Attention will be devoted to proper breathing and diction techniques, reading music, and professional performance styles. This class is activity based and will include at least two performances per semester. A solo voice is not necessary but a desire to participate in an artistic process for enjoyment is.

Prerequisite: None
Credit: ½ (may be repeated for a total of 1 credit)
Length: 1 semester

FA 516 – Guitar Studies

This course is for beginning guitar students. Through guitar studies students will study the fundamentals of music theory. Various musical styles, melodic playing, choral accompaniment, solo and ensemble playing will be studied throughout the course. Class size is limited to 10 per semester. Students are required to provide their own guitar. No prior knowledge of the guitar is needed.

Prerequisite: None
Credit: ½
Length: 1 semester

FA 517 – Guitar Performance

Guitar performance class is for those students playing guitar and bass guitar. Many appropriate styles of music will be practiced and performed. Students are required to provide their own instrument. Ability to read music notation is required. Course is offered during both fall and spring semesters.

Prerequisite: Consent of instructor
Credit: $\frac{1}{2}$
Length: 1 semester

FA 565 – Special Topics in Music

This course is based on individual student interest and may be offered on a rotating basis.

Prerequisite: Consent of instructor
Credit: $\frac{1}{2}$ (elective credit beyond the required 13.0)
Length: 1 semester

FOREIGN LANGUAGE

Introduction

All MSMS graduates must have successfully completed two years of high school foreign language study. It is strongly suggested, though not required, that both credits be in the same language. Those who choose to complete the requirement at MSMS can select from courses in five languages: French, German, Latin, and Spanish. Foreign language courses offer a strong background in vocabulary, grammar, reading, translation, and pronunciation skills, which will enhance the success of college-bound students in university foreign language courses as well as lay the framework upon which students who travel abroad may sharpen their conversational skills. Emphasis is also placed on the understanding and appreciation of the culture of the target country. Advanced students interested in exploring a foreign language more deeply and who have an ACT of 25 may take courses in the foreign language department of MUW. Software programs such as Rosetta Stone, A+ and Living Language are used in addition to classroom instruction.

Guidelines for Foreign Language Required Courses

MSMS requires students to take **two years** of foreign language during grades 9-12. Students who have already received credit in 2 foreign language courses prior to entering MSMS have fulfilled this MSMS requirement.

Students who have never earned credit in a foreign language course before entering MSMS, **must earn 2 foreign language credits during the junior and senior years.**

A majority of out-of-state universities require that the two credits of foreign language be in the same language. (example: Spanish I and II)

Objectives

Within the study of foreign languages, the student will be equipped:

- 1) To understand and speak, at a beginning level, at least one foreign language;
- 2) Understand the differences between their own culture and that of others;

- 3) To have a heightened awareness and comprehension of their own native tongue; and
- 4) To realize the importance of the study of language and culture as they relate to their country's needs in commerce, diplomacy, defense, and education.

FRENCH

FL 801 – French I

This course introduces the student to the language and culture of the French speaking world. The languages skills of listening, speaking, reading, and writing will be developed in simple French. Students will learn to communicate in situations involving greetings, describing people and relationships, school, basic purchasing and asking for help, and leisure activities. Students will learn to speak using present tense, past tense, and the near future.

Prerequisite: None
Credit: 1
Length: 1 year

FL 802 – French II

This course continues the study of the basic structures of both the oral and written French language. It includes a continuing review of the important elements learned in French I, while introducing additional verb tenses and pronoun groups.

Prerequisite: French I
Credit: 1
Length: 1 year

FL 803 – French III

French III focuses on strengthening the skills gained in French I and II. Important components of the course include vocabulary expansion, reading from French literature and culture, listening to tapes of native speakers, oral practice, and carefully guided written composition. A small number of new structures are introduced, and brief reviews of previously-learned vocabulary and grammar are conducted as needed.

Prerequisite: French I and II
Credit: 1
Length: 1 year

SPANISH

FL 811 – Spanish I

In Spanish I students learn the basics of Spanish grammar and begin their acquaintance with the history, geography and culture of Spanish-speaking countries. Lessons and activities focus on developing initial skills in listening, speaking, reading and writing in simple situations involving friends, family, school and leisure.

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| Prerequisite: | None |
| Credit: | 1 |
| Length: | 1 year |

FL 812 – Spanish II

Spanish II builds on skills acquired in Spanish I by adding new vocabulary, verb tenses and pronoun groups. Through exercises including situational dialogues and games of grammar, students expand their repertoire to communicate in scenarios such as traveling, seeking medical help, and shopping for clothes or food.

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| Prerequisite: | Spanish I |
| Credit: | 1 |
| Length: | 1 year |

FL 813 – Spanish III

Spanish III offers increasing grammatical complexity with a focus on the subjunctive, a verb form widely used in Spanish. The skills of listening, speaking, reading and writing continue to be developed with methods ranging from study of literary excerpts to conversational role play to blogging.

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| Prerequisite: | Spanish I & II |
| Credit: | 1 |
| Length: | 1 year |

LATIN

FL 821 – Latin I

In this introductory course, students will acquire a basic Latin vocabulary and understanding of Latin grammar that will expand their English vocabulary, particularly in terms used in science, law, and SAT/ACT preparation, and improve students' understanding of English grammar and writing ability. There will also be discussion of Roman culture and mythology, including individual projects where students are free to explore topics of interest.

Prerequisite: None
Credit: 1
Length: 1 year

FL 822 – Latin II

Latin II students will continue with grammar and vocabulary, leading to a solid basis of knowledge in the language and translation of some basic stories near the end of the semester. Students will also learn about Roman culture and history, its famous people and accomplishments, and will complete projects on a topic of their choice.

Prerequisite: Latin I
Credit: 1
Length: 1 year

GERMAN

FL 831 – German I

This course introduces the student to the language and culture of German-speaking world. All the languages skills of listening, speaking, reading, and writing will be developed in simple German. Students will learn to communicate in situations involving greetings, describing people and relationships, school, basic purchasing and asking for help, and leisure activities. Students will learn to speak using present tense, past tense, and the near future.

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| Prerequisite: | None |
| Credit: | 1 |
| Length: | 1 year |

FL 832 – German II

This course continues the study of the basic structures of both the oral and written German language. It includes a continuing review of the important elements learned in German I, while introducing additional verb tenses, pronoun groups, and elements of the case structure. An emphasis is placed on understanding both written and spoken German.

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| Prerequisite: | German I |
| Credit: | 1 |
| Length: | 1 year |

RUSSIAN

FL 841 – Russian I

This course introduces students to the Russian language and the history, geography and culture of the Slavic world. All language skills -- listening, speaking, reading, and writing -- will be developed to enable the student to communicate at a basic level in situations involving family, friends and school. Study of grammar and pronunciation is enhanced through memorization and performance of simple dialogues, songs and poetry.

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| Prerequisite: | None |
| Credit: | 1 |
| Length: | 1 year |

FL 842 – Russian II

This course continues the study of the basic structures of both oral and written Russian. It includes a continuing review of the important elements learned in Russian I, while introducing new vocabulary, additional elements of the case structure and additional verb forms. All language skills -- listening, speaking, reading, and writing -- will be developed. Textbook and conversational exercises will be supplemented with study of Russia's splendid fairy tales, folk songs and poetry.

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| Prerequisite: | Russian I |
| Credit: | 1 |
| Length: | 1 year |

FL 850 – Advanced Topics in Foreign Language

This course continues the study of a foreign language. It will focus on vocabulary expansion, reading, writing and conversational skills. A few new grammar concepts will be introduced and most previously learned grammar concepts will be reviewed. It is based on individual student interest and may be offered on a rotating basis.

| | |
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| Prerequisite: | Highest level of language of interest, consent of instructor |
| Credit: | ½ to 1 (elective credit beyond required 13.0) |
| Length: | 1 semester or 1 year (dependent on course) |

INTERDISCIPLINARY COURSES

Introduction

The world today is composed of interrelated social, biological, physical, and technological systems that are inherently complex. One of the objectives is to provide students with an avenue to explore connections between seemingly divergent topics. The interdisciplinary courses described below are designed to give students a foundation for developing skills that will allow them to become effective problem solvers.

EN 125 – African-American Writers

This course is a study of the development of African-American writers and their times. Successful students will complete outside readings, will respond to the literature through critical essays and timed examinations, and will participate in class. Offered during the spring semester.

Prerequisite: none
Credit: ½ (elective)
Length: 1 semester

ID 145 – Introduction to American Film

This course is a study of the development of cinematic techniques and ideals in twentieth-century America. Successful students will complete outside readings, will respond to the literature through critical essays and timed examinations, and will participate in class. (Please note that this course is an elective.)

Prerequisite: None
Credit: ½ (elective)
Length: 1 semester

ID 150 – Creative Media I

Students will explore expression through various media such as video, audio, tape, expository or dramatic expression, and print. Students will practice the technological aspects of the media and the movement, enunciation, projection, and characterization of the dramatic arts necessary to prepare for a final multimedia, multidisciplinary production.

Prerequisite: Consent of instructor
Credit: ½ (elective)
Length: 1 semester

ID 155 – Creative Media II

This hands-on course focuses on the use of the computer as the primary tool in the editing and creation of productions. Students will learn to use a high-level video capture board, multimedia editing and bit-editing programs, a three-dimensional graphics generator, and methods for generating a video production in the computer to print to video tape. Special experiences with demonstrated knowledge of video production may serve as a prerequisite.

Prerequisite: Creative Media I
Credit: ½ (elective)
Length: 1 semester

ID 160 – Foundations of Western Thought

Students will read and discuss selected works of some of our culture's most influential intellectual figures. The development of philosophical traditions will be traced beginning with Plato, Aristotle, Epicurus, Zeno, and Augustine, continuing through Rousseau, Kant, Nietzsche, Freud, and Sartre.

Prerequisite: None
Credit: ½ (elective)
Length: 1 semester

ID 180 – Health

This course will cover the mental, emotional, and social health of the individual. It also studies stress and means of handling life. The course is an outstanding study for the improvement of the quality of health. It includes 10 lessons and 2 tests and is an on-line course. Students who have not taken health prior to attending MSMS, must complete health by the end of their junior year.

Prerequisite: None
Credit: ½
Length: 1 semester

Note: Health will not count toward the 13 MSMS required credits.

MATHEMATICS

Introduction

Mathematics has a long impressive record of contributions to discovery and problem solving in science and technology, decision making in business and government, and creative expression in the arts. This record of achievement has earned mathematics a prominent place in school curricula. We live in a world where the emphasis has shifted the demands of mathematics to prepare technologically advanced students who can solve real-world problems and who can communicate those solutions. The Mississippi School for Mathematics and Science mathematics curriculum emphasizes exploration, investigation, reasoning, and communication for all students.

Guidelines for Mathematics Required Courses

Students are required to enroll in at least one math course each semester. After completing Algebra II, Trigonometry and either Foundations for Higher Math or Math Modeling, each student will choose to complete one semester from one of the following curricula:

- 1) Statistics – For students preparing to study in areas such as social sciences, humanities, business.
- 2) Calculus – Prepares students to study the sciences, mathematics, or technical areas such as engineering or computer science.

Objectives

In an effort to implement the National Council of Teachers of Mathematics Standards, the mathematics curriculum objectives are:

- 1) To utilize methods of mathematical modeling and problem solving.
- 2) To provide opportunities for reinforcement and extension of logical reasoning and higher-order thinking skills.
- 3) To encourage investigations of the connections among various mathematical topics and their applications.

Special emphasis is placed on writing, research, appropriate use of technology, and student-designed projects in order to enhance the implementation of the department's curricular goals.

All students must have earned credit in Algebra I and Unified Geometry before entering MSMS. It is strongly recommended that Algebra II be completed also. In the event that a student has completed Algebra I and Algebra II, but does not have a credit for Unified Geometry, the student must take a Unified Geometry course either by correspondence, virtual school or summer school offerings. This credit must be earned before the beginning of the school year. A course in Unified Geometry will not be taught at MSMS.

MA 211 – Accelerated Algebra II (Juniors)

Accelerated Algebra II is the full Algebra II course covered in one semester. The course is a continuation and extension of the skills developed in Alg. I. Topics will include: the complex number system, linear and quadratic equations, relations and functions, polynomials, rational expressions and equations, and logarithmic and exponential expressions and equations.

Prerequisite: Algebra I, Unified Geometry
Credit: 1
Length: 1 semester

MA 220 – Trigonometry

This course provides a comprehensive study of trigonometric functions with an emphasis on application. Topics will include circular functions and their graphs, triangle trigonometry, identities and equations, and vectors. **Trig may be taken along with or after Foundations/Math Modeling, but should NOT be taken prior to Foundations/Math Modeling.**

Prerequisite: Unified Geometry, Algebra II
Corequisite: Foundations
Credit: $\frac{1}{2}$
Length: 1 semester

MA 235 – Foundations for Higher Math (Juniors)

Solving real-world problems frequently requires advanced statistical and mathematical techniques. This course provides the foundations for these techniques while giving them a hands-on approach to many such problems. Skills required for both Calculus and Statistics will be thoroughly developed.

Individual and team skills will be enhanced as the students investigate models, perform experiments and analyze data. All students are required to take either MA 235 or MA 236.

Prerequisite: Unified Geometry, Algebra II
Credit: $\frac{1}{2}$
Length: 1 semester

MA 236 – Math Modeling (Juniors)

Offered as an alternative to MA 235 for those juniors who have had precalculus and/or advanced math or who have had a strong mathematical background (substantiated by scores on the MSMS Mathematics Pretest) and have a desire to be in the class. This course provides the foundations for higher mathematics courses from a math modeling perspective. Students investigate, find models, determine strengths and weaknesses of models and create summaries of their findings. The topics for the real-world problems generally relate to the Foundations for Higher Mathematics curriculum, but also include techniques that would better prepare students for the Math Modeling Competition.

Prerequisites: Unified Geometry, Algebra II, Precalculus or its equivalent, and/or math department approval
Credit: $\frac{1}{2}$
Length: 1 semester

CALCULUS OPTIONS

Students electing to pursue Calculus as their higher math option may begin with either Differential Calculus (MA 242), or a college level dual credit University Calculus I (MA 244).

MA 244 – University Calculus I (2nd Semester Juniors, Seniors)

This course is equivalent to MA 181 Calculus I offered by Mississippi University for Women. It is a thorough treatment of differential calculus including the concepts of limits, continuity, derivatives and application of derivatives. (Not open to first semester juniors.)

Prerequisites: B or higher in Trigonometry, Foundations or Math Modeling, and Differential Calculus; and/or math department approval
Credit: $\frac{1}{2}$ MSMS and 3 hours college credit
Length: 1 semester

MA 242 – Differential Calculus

This course is offered as a beginning to the calculus sequence for those students who choose not to take the college level University Calculus I or who do not qualify. This course provides an introduction to differential calculus. Topics include limits, continuity, derivatives and their applications.

Prerequisites: Trigonometry and Foundations or Math Modeling
Credit: $\frac{1}{2}$
Length: 1 semester

MA 248 – University Calculus II

This college level course is equivalent to MA 182 Calculus I offered by Mississippi University for Women. It is a thorough treatment of integral calculus including Riemann sums, applications of integrals and techniques of integration, as well as the calculus of transcendental functions. Completion of this course prepares students to take the AP AB Calculus Test.

Prerequisites: B or higher in MA 244 University Calculus I
Credit: $\frac{1}{2}$ MSMS; 3 hours college credit
Length: 1 semester

MA 246 – Integral Calculus

This course provides an introduction to some theory, techniques and applications of integral calculus. Derivatives of transcendental functions are included in the discussion of integration as it applies.

Prerequisites: MA 242 Differential Calculus
Credit: $\frac{1}{2}$
Length: 1 semester

MA 252 –Calculus III

This course extends the techniques of differential and integral calculus to the study of polar and parametric equations, along with vector-valued functions of several independent variables. There is a thorough coverage of infinite series including Taylor Series. Completion of this course prepares students to take the AP BC Calculus Test.

Prerequisite: University Calculus II with a grade of B or above
Credit: $\frac{1}{2}$
Length: 1 semester

MA 254 – Differential Equations

This course will provide an investigation of differential equations through analytical techniques and numerical methods. Applications will be stressed throughout so that the interrelationship of pure mathematics, modeling and the physical sciences may be developed. Technology will play a significant role as students will be required to use MAPLE and EXCEL. Major topics include first order, second order, and systems of differential equations.

Prerequisite: University Calculus II or consent of instructor
Corequisite: Calculus III
Credit: $\frac{1}{2}$
Length: 1 semester

MA 260 – Investigations in Geometry

This course will examine Euclidean and non-Euclidean geometry, topology, dimensions and fractals. This is a survey of topics class with hands-on and computer investigations, and required reading. Students are required to read *Flatland* and *Jurassic Park*. This course will not satisfy credit for Unified Geometry.

Prerequisite: Unified Geometry, Algebra II
Corequisite: Foundations
Credit: $\frac{1}{2}$
Length: 1 semester

MA 261 – Explorations in Mathematical Art

This course will investigate the geometry of constructions, transformations, and tessellations. Students will explore mathematical techniques used in selected art work. The course will use technology, including spreadsheets and Geometer's Sketchpad.

Prerequisite: Unified Geometry, Algebra II
Corequisite: Foundations
Credit: $\frac{1}{2}$
Length: 1 semester

MA263 -- History of Mathematics

This course will explore the mathematical development of ideas and problem-solving techniques throughout history. Student research and creative presentations will be required. Offered spring semester.

Prerequisite: Unified Geometry, Algebra II
Corequisite: Foundations
Credit: $\frac{1}{2}$
Length: 1 semester

MA 264 – Logic and Game Theory

This course is a study of logic, symbolic notation, truth tables, simple game theory, and problem-solving strategies.

Prerequisite: Unified Geometry, Algebra II
Corequisite: Foundations
Credit: $\frac{1}{2}$
Length: 1 semester

STATISTICS OPTIONS

Students electing to pursue Statistics as their higher math option may begin with either Statistics I (MA 268), or a college level dual credit University Statistics I (MA 269).

MA 269 – University Statistics I (Seniors only, except by special permission for advancement)

This course is equivalent to MA 123 Statistics I offered by Mississippi University for Women. It is an introduction to basic applications of descriptive and inferential statistics; organizing data, mean, median and mode, and standard deviation, boxplots, probability and discrete random variables, the binomial distribution, the normal distribution, sampling distribution of the mean, confidence intervals and hypothesis tests for one population mean, the chi-square distribution. Use of technology and technology projects will be integrated throughout the course.

Prerequisite: Senior standing or instructor approval, B or higher in Foundations or Math Modeling
Credit: $\frac{1}{2}$ MSMS; 3 hours college credit
Length: 1 semester

MA 268 – Statistics I (Seniors only, except by special permission for advancement)

This course is a study of descriptive statistics, probability concepts, normal distributions, regression models, design of experiments, and an introduction to inferential statistics. Use of technology will be integrated throughout the course.

Prerequisite: Senior standing or instructor approval, Foundations or Math Modeling
Credit: $\frac{1}{2}$
Length: 1 semester

MA 270 – AP Statistics I (Seniors only, except by special permission for advancement)

Like Statistics I, this course is a study of descriptive statistics, probability concepts, normal distributions, regression models, design of experiments, and an introduction to inferential statistics. Use of technology will be integrated throughout the course. Unlike Statistics I, this course is design as preparation for the AP exam in Statistics and is meant to precede AP Statistics II.

Prerequisite: Senior standing or instructor approval, B or higher in Foundations or Math Modeling
Credit: $\frac{1}{2}$ MSMS
Length: 1 semester

MA 271 – AP Statistics II (Seniors only, except by special permission for advancement)

A study of confidence intervals, hypothesis testing, statistical inference, regression analysis, and analysis of variance, this course uses in-depth investigations with descriptive and inferential statistics. Students will complete a final project in which they design a study, collect and analyze data, and present a summary of their findings.

Prerequisite: MA 270 AP Statistics I
Credit: $\frac{1}{2}$
Length: 1 semester

MA 275 – Number Sense (Seniors only, except by special permission for advancement)

This course will provide a study of number patterns, number relationships, and topics from number theory. Emphasis will be placed upon applications, problem solving, discussion, investigation, and competitive team practice.

Prerequisite: Unified Geometry, Algebra II, Foundations AND Consent of instructor
Credit: $\frac{1}{2}$
Length: 1 semester

MA 280 – Discrete Mathematics

Introduction to the mathematical foundations of Computer Science, with a focus on logic and mathematical reasoning. Topics will include propositional logic, logical proofs, recursion, set theory, Boolean algebra, relations, combinatorics, and graph theory.

Prerequisite: Algebra II
Credit: $\frac{1}{2}$
Length: 1 semester

MA 271 – Statistics II

This course uses in-depth investigations with descriptive and inferential statistics: projects, design of experiments, hypothesis testing with matched pairs, two means, proportions, and regression.

Prerequisite: University Statistics I or Statistics I
Credit: $\frac{1}{2}$
Length: 1 semester

MA 290 – Special Topics

Independent study includes examination and discussion of mathematical topics outside the standard curriculum. This is for advanced students or students with special needs.

Prerequisite: Consent of instructor, permission of Director for Academic Affairs
Credit: $\frac{1}{2}$ (elective credit beyond required 13.0)
Length: 1 semester

SCIENCE

Introduction

The purpose of the science department of the Mississippi School for Mathematics and Science is to give students a broad overview of the sciences and to make them scientifically literate in each of the major subject areas: biology, chemistry, and physics. Emphasis is placed on mastery of basic concepts and laboratory skills through course lectures and discussions, laboratory investigations, field trips, tours, special projects, guest lecturers, and direct involvement with researchers at the college level. Students are given the opportunity to pursue their particular interests through elective courses and independent research.

Guidelines on Required Science Courses

In general, students complete two credits of science during the junior year and the third credit of science and one-half swing credit during the senior year (or some variation of this sequence). The objective is to achieve a balance throughout your two years at MSMS.

All students are required to earn a minimum of three credits in science by successfully completing one credit each in Biology, Chemistry and Physics **at MSMS**.

- (1) Biology - Course selection may be determined by student interest and career plans.
- (2) Chemistry – Students who have not completed a year of chemistry at their home school must enroll in SC366 Chemical Foundations (fall), SC367 Chemical Reactions (spring)
- (3) Physics - Students must complete one semester of mechanics followed by one semester of waves. It is recommended that students have completed Trigonometry before enrolling in Mechanics.

Objectives

- 1) To prepare the student for success in college, specifically in the sciences.
- 2) To teach content so as to encourage critical thinking and the application of scientific principles to problem solving.
- 3) To prepare the student to read and appreciate scientific literature.
- 4) To prepare the student to be able to make intelligent choices concerning scientific issues.

BIOLOGY COURSES

Guidelines for Required Biology Courses

Course selection may be determined by student interest and career plans. All biology courses are laboratory based and meet four days per week.

SC 312 – Cell Biology

This course involves the study of the biology of cells from the molecular to the microscopic level of organization. Prokaryotic and eukaryotic cells will be considered. Cellular architecture and physiology will be considered in the context of biological macromolecules and their building blocks.

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| Prerequisite: | None |
| Credit: | ½ (biology) |
| Length: | 1 semester |

SC 313 – Microbiology

Microbiology is the study of microorganisms; this class focuses predominantly on bacteria emphasizing central themes of cellular biology and the scientific method. This course is a laboratory-based course (lectures are integrated with labs) in which the students learn the fundamental techniques of the discipline. In the latter part of the semester, the students are required to do an intensive independent project of their design that applies the techniques they have learned.

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| Prerequisite: | Cell biology |
| Credit: | ½ (biology) |
| Length: | 1 semester |

SC 314 – Anatomy and Physiology

This course is designed for the student who has completed a course in general biology or cell biology. Emphasis is placed on the structure and function of the human body and homeostatic mechanisms. The physiological systems to be examined are integumentary, skeletal, muscular, nervous, endocrine, respiratory, excretory, circulatory, and reproductive. Students will utilize readings from periodicals or books to extend understanding of topics, perform a research project, and write a research paper based on the project.

Prerequisite: None
Credit: 1 (biology)
Length: 1 year

SC 318 – Genetics

This course is a study of the principles of heredity and the nature of genetic material. It is divided into three sections: Mendelian genetics, Molecular genetics, and Population genetics. This course is presented in the context of evolutionary biology. It also serves as an introduction to recombinant DNA technology and addresses the current social, legal, and ethical issues raised by these modern molecular techniques.

Prerequisite: Cell biology
Credit: ½ (biology)
Length: 1 semester

SC 319 – Molecular Biology

This course will survey molecular genetics from the history of the biological revolution to recombinant DNA technology to genetic engineering. It is designed to be lab oriented with emphasis on recombinant DNA experimentation. The lecture portion of the course is based on the biochemistry of genetics. Students should have completed Genetics, and Chemistry or equivalent before taking this course. Knowledge of how molecules are formed and combined will be especially helpful.

Prerequisite: Genetics, Chemistry or consent of instructor
Credit: ½ unit (biology)
Length: 1 semester

SC 320 – Ecology of Environmental Problems

This course examines environmental problems from an ecological perspective. Initially, the course considers the relationships between organisms and their environment; an introduction to the physiological bases for adaptations, population dynamics (both human and non-human), community organization; and the structure and function of ecosystems (including atmosphere, climate, and weather). Interdisciplinary methods of analysis will be used to explore natural systems while scrutinizing resource management strategies, pollution, economic factors (local and global), and the politics of environmental problems.

Prerequisite: None
Credit: ½ (biology)
Length: 1 semester

SC 322– Human Infectious Diseases (Seniors, recommended)

Infectious diseases have and will profoundly shape the destiny of man. This course is taught using a Problem Based Learning (PBL) approach and emphasizes the study of both the aetiology of infectious diseases and their ramifications. It is intended for the student who has been successful in Microbiology and has the drive and maturity to discuss topics of historical and global significance. The topics addressed will largely be determined by the class and are usually reflective of current (often ongoing) disease outbreaks monitored using ProMED and other electronic resources. Intensive laboratory work will typically be done in small groups and will reflect the topics studied in class culminating in a paper written in a professional format.

Prerequisite: Microbiology required
Credit: ½ (biology)
Length: 1 semester

SC 324 – Special Topics in Biology

This course is designed to give students an opportunity for individualized learning in biology. The student will select faculty advisors and with their help, choose a particular biology problem of interest and pursue the problem.

Prerequisite: Consent of the instructor
Credit: ½ (elective credit beyond the 13.0 required)
Length: 1 semester (with the option to repeat the course for another ½ credit)

SC 360 – Introduction to Biochemistry (Seniors)

This is a senior-level course designed as an intensive survey of biological molecules-proteins, nucleic acids, lipids and carbohydrates. The major emphasis will be on proteins, but a portion of the course will also be dedicated to nucleic acid, lipid and carbohydrate structure, and metabolism.

Prerequisite: Cell Biology and one year of Chemistry at MSMS or consent of instructor; Organic Chemistry is recommended
Credit: ½ (chemistry or biology)
Length: 1 semester

CHEMISTRY COURSES

Guidelines for Required Chemistry Courses

Students not enrolled in General Chemistry or AP Chemistry must take at least one semester of chemistry during their junior year. All juniors entering MSMS who have not completed and earned credit in a year of chemistry must enroll in General Chemistry (SC 350) during their junior year. Chemistry course selection for students who have earned a credit in chemistry prior to attending MSMS will be determined by a chemistry placement test (for those interested in taking Advanced Placement Chemistry) and student interest. All chemistry courses are laboratory based. AP Chemistry meets 5 days per week.

SC 366 – Chemical Foundations (Fall only)

Chemical Foundations is an in-depth study of the skills and theoretical frameworks of chemistry. Measurement, atomic and molecular structure, stoichiometry, bonding, periodicity and the periodic table, and nomenclature will be studied with an emphasis on the mathematics of chemistry including dimensional analysis and problem solving.

Prerequisite: None
Credit: 1/2 (chemistry)
Length: 1 semester

SC 367 – Chemical Reactions

Chemical Reactions studies the types of and laws governing the reactions of matter. In particular, students will study solubility and precipitation, gases and gas laws, acids and bases, intermolecular forces, solution chemistry, and a brief introduction to chemical kinetics and thermodynamics. Students entering SC 367 without credit from SC 366 must demonstrate basic proficiency with the topics in SC 366 via placement exam. A strong emphasis will be placed on problem solving and application of skills covered in SC 366.

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| Prerequisite: | Chemical Foundations <u>or</u> 1 year of chemistry <u>and</u> appropriate score on placement exam |
| Credit: | ½ (chemistry) |
| Length: | 1 semester |

SC 368 – Energy and Equilibrium in Chemical Systems (Spring only)

Energy and Equilibrium focuses on advanced chemistry topics such as chemical kinetics, thermodynamics, equilibria and their applications, redox chemistry, and electrochemistry. An emphasis will be placed on problem solving, extension of skills from SC 366 and 367, and laboratory practice.

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| Prerequisite: | Chemical Reactions |
| Credit: | ½ (chemistry) |
| Length: | 1 semester |

SC 355 – AP[®] Chemistry

This course provides an in-depth study of the principles of modern chemistry and should prepare the student for the AP[®] exam in chemistry. This course requires several hours of study time beyond that required in other courses as well as a laboratory assignment for each week.

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| Prerequisite: | One year of Chemistry and passing score on the chemistry placement test |
| Credit: | 1 (chemistry) |
| Length: | 1 year |

SC 357 – Organic Chemistry (Seniors)

This course is designed to be an introduction to the basic principles of organic chemistry. Topics to be covered include nomenclature, elementary reactions of functional groups, stereochemistry, and isomerism.

Prerequisite: One year of Chemistry
Credit: $\frac{1}{2}$ (chemistry)
Length: 1 semester

SC 360 – Introduction to Biochemistry (Seniors)

This is a senior-level course designed as an intensive survey of biological molecules-proteins, nucleic acids, lipids and carbohydrates and their interactions from a cellular level to an atomic description. The major emphasis will be on proteins, but a portion of the course will also be dedicated to nucleic acid, lipid and carbohydrate structure, and metabolism.

Prerequisite: Cell Biology and one year of Chemistry at MSMS or consent of instructor; Organic Chemistry is recommended
Credit: $\frac{1}{2}$ (chemistry or biology)
Length: 1 semester

SC 364 – Analytical Chemistry (Seniors)

This course is designed to introduce the student to the methods used in the quantitative analysis of chemical compounds. This includes classical gravimetric and volumetric methods as well as modern methods such as spectrometry and chromatography. The course also includes a brief overview of statistical methods used in data analysis. The class is primarily lab-based, but does include some out-of-class work. The class is a senior level course and is offered in the spring semester.

Prerequisite: SC 368 or higher chemistry
Credit: $\frac{1}{2}$ (chemistry)
Length: 1 semester

SC 325 – Special Topics in Chemistry (Seniors)

This course is designed to give the student an opportunity to for individualized learning in chemistry. The student will select faculty advisors and with their help, choose a particular problem of interest in chemistry and pursue the problem.

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| Prerequisite: | Consent of the instructor |
| Credit: | ½ (elective credit beyond 13.0 required) |
| Length: | 1 semester (with option to repeat for another ½ credit) |

PHYSICS COURSES

Guidelines for Required Physics Courses

Physics - Students must complete one semester of mechanics followed by one semester of waves. **It is recommended that students have completed Trigonometry before enrolling in Mechanics.** Entering juniors who wish to complete two full years of physics (both algebra/trigonometry-based and calculus-based) should enroll in Advanced Mechanics, the college-level algebra/trigonometry-based course, during the fall of their junior year.

Note concerning Physics graduation requirements: Students may not apply credit from **both SC 331 and SC 335** toward the one required credit in Physics.

SC 331 – Mechanics

Successful completion of this algebra and trigonometry-based course will familiarize students with the laws of mechanics and their applications.

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| Prerequisite: | Geometry, Algebra II |
| Corequisite: | Trigonometry |
| Credit: | ½ |
| Length: | 1 semester |

SC 332 – Waves, Electricity, and Magnetism

Successful completion of this algebra and trigonometry-based course will provide a solid foundation in the principles of waves, electricity, and magnetism.

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| Prerequisite: | Mechanics, Trigonometry |
| Credit: | ½ |
| Length: | 1 semester |

SC 335 – University Advanced Mechanics (College credit)

Successful completion of this college-level, algebra and trigonometry-based course will provide a solid conceptual and mathematical foundation in the principles of both classical and fluid mechanics, along with their applications.

In addition to assignments made from a college text along with a variety of outside reading assignments students are expected to utilize the Internet and the MSMS network to avail themselves to a variety of tutorial materials.

Prerequisite: Unified Geometry, Algebra II, consent of the instructor, and Admission to MUW
Corequisite: Trigonometry
Credit: $\frac{1}{2}$
Length: 1 semester

SC 336 – Adv. Waves, Electricity, & Magnetism

Completion of this algebra and trigonometry-based course will provide a solid foundation in the principles of mechanical and electromagnetic waves as well as electricity and magnetism. In addition to assignments made from a college text along with outside reading, students are expected to take advantage of the available technology for tutorial purposes.

Prerequisite: Mechanics, Trigonometry
Credit: $\frac{1}{2}$
Length: 1 semester

SC 337 - AP[®] Physics C: Mechanics

The course provides students with a vector-calculus based introduction to the principles of classical mechanics. Both differential and integral calculus concepts will be utilized throughout the course. Topics include kinematics, Newton's Laws, collisions and conservation laws, work and energy, rotational motion, statics, harmonic motion, gravitation and other topics as well. This lab-based course is designed to prepare students to take the AP[®] Physics C Mechanics examination, which is administered each May.

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| Prerequisite: | One full year of physics at MSMS, Differential Calculus or equivalent, or approval of instructor and Academic Director |
| Corequisite: | Integral Calculus or equivalent |
| Credit: | ½ |
| Length: | 1 semester |

SC 338 - AP[®] Physics C: Electricity and Magnetism

The course provides students with a vector-calculus based introduction to the principles of classical electricity and magnetism. Both differential and integral calculus concepts will be utilized throughout the course. The major laws of electromagnetic theory are developed including Coulomb's Law, Gauss' Law, Ampere's Law, the Biot-Savart Law and Faraday's Law, ultimately leading to Maxwell's Equations. The lab-based course is designed to prepare students to take the AP[®] Physics C Electricity & Magnetism examination, which is administered each May.

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| Prerequisite: | AP [®] Mechanics |
| Corequisite: | An MSMS Waves, Electricity & Magnetism course |
| Credit: | ½ |
| Length: | 1 semester |

SC 339 – Modern Physics

The course provides a trigonometry based survey of the physics developed during the twentieth century, including relativity, atomic and nuclear structure, wave-particle duality, early quantum mechanics, nuclear energy and an introduction to elementary particles. Some knowledge of classical physics is a necessary prerequisite.

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| Prerequisite: | Mechanics |
| Co-requisite: | Waves/E&M or consent of instructor |
| Credit: | ½ |
| Length: | 1 semester |

SC 344 – Astronomy/Astrophysics

The class will introduce the Earth & Moon system, the sky and seasons, the origin of the Solar System, the planetary geology of the terrestrial planets, the recent exploration of the outer planets, the outer solar system, and the varieties of stars in the Universe from their birth to destruction.

Corequisite: Mechanics or consent of instructor
Credit: $\frac{1}{2}$
Length: 1 semester

SC 345 – Electronics

This course is offered to allow students an opportunity to develop expertise in the area of electronics. Assignments will be made from both text and laboratory designs. Students can gain familiarity with microprocessors, digital circuits, and analog circuits in this course. A major part of the grade will be a final project.

Prerequisite: Consent of the instructor
Credit: $\frac{1}{2}$
Length: 1 semester

SC 346 – Special Topics in Physics

This course is designed to give the student an opportunity for individualized learning in physics. The student will select faculty advisors and with their help, choose a particular physics problem of interest and pursue the problem.

Prerequisite: Consent of instructor
Credit: $\frac{1}{2}$ (elective credit beyond required 13.0)
Length: 1 semester (with the option to repeat the course for another $\frac{1}{2}$ credit)

SOCIAL SCIENCE

Introduction

The capacity to reason reflectively and constructively concerning the problems of man and his world will be the major goal of instruction in the social sciences. Sub-goals will include providing students with opportunities to acquire depth and precision of understanding in handling concepts and ideas rather than additions to the store of facts. In addition, social science courses will develop the ability to think abstractly, critically, and reflectively with social science data. The social science curriculum will also concern itself with respect for the facts, open-mindedness, and participation in group action of a kind that reflects a desire on the part of the participant to seek solutions to social problems.

Guidelines on Social Science Required Courses

Students who have not earned credit in U.S. History in grades 9 or 10, must complete one credit during the junior year. **U.S. History is required of all students who come to MSMS** without a credit in U.S. History. Students who have not earned a full credit of World History prior to entering MSMS need to do so during the junior year. There are a variety of ways to meet this requirement. **American Government is reserved for the senior year.**

Objectives

Within the study of social sciences, students will be equipped:

- 1) To understand the broad sweep of both ancient and contemporary ideas that have shaped our world;
- 2) To understand the fundamentals of how our economic system works and how our political system functions;
- 3) To grasp the difference between free and repressive societies; and
- 4) To demonstrate this understanding through informed and committed exercise of citizenship.

SS 600 – United States History: Imperialism to New Frontier

This course surveys United States History from 1877 and is required of all students needing to fulfill the US History graduation requirement set by the Mississippi State Department of Education. Course topics include, but are not limited to: The Rise to Industrial Supremacy, the Age of the City, the Populist Movement, American Imperialism, the Progressive Movement, America and the Great War, the New Era (“Roaring Twenties”), the Great Depression, the New Deal, the Second World War, the Cold War, the Affluent Society of the 1950s, the Korean War, the Civil Rights Era – the Early Years, and the Vietnam War – the Early Years. The course will include use of a textbook, lecture, outside readings, current event materials and research projects.

Prerequisite: None
Credit: 1 unit
Length: Year

SS 603 – United States History: Imperialism to New Frontier (Research focus: Tales from the Crypt)

This section includes the award-winning “Tales from the Crypt” research/performance project. Students conduct primary and secondary research on an individual buried in Historic Friendship Cemetery. After completing a research paper, students develop dramatic vignettes performed during candlelight cemetery tours in the spring.

Prerequisite: None
Credit: 1 unit
Length: Year

SS 612 – World Geography

This course focuses on the study of world geography through current world problems. Students study the world’s major regions and the United States’ role in world affairs while exploring how culture influences the decisions of world leaders and how economics, geography, and history have influenced the political systems of the world. Students also explore the relationship among people, places and environments; the concept of regional identities; the global competition for natural resources; and the modification of our physical environment. The course includes the use of current event materials and a variety of research tools. This course meets the ½ credit Geography graduation requirement.

Prerequisite: None
Credit: ½
Length: 1 semester

SS 615 – Mississippi Crossroads I: 20th Century Mississippi Cultural Expression

This course will examine the sources and themes of 20th century Mississippi artistic and cultural expression as they emerge from and contribute to a social, historical, political, and cultural milieu. Topics addressed will include the music, history and traditions of the state – including, but not limited to: writers, blues, country, visual arts, politics, agriculture, civil rights issues, race/ethnicity, and more.

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| Prerequisite: | None |
| Credit: | ½ (elective or may be used to complete <i>Mississippi Studies</i> requirement) |
| Length: | 1 semester |

SS 625 – Modern European History

Course includes, but is not limited to study of the Black Death, the Renaissance including art and music, the Age of Exploration, the Reformation, the English Civil War, Scientific Revolution, French Revolution, Napoleon, Imperialism, and WWI. The course will include use of a textbook, lecture, outside readings, current event materials, field trips, and research projects. This course meets the World History requirements set by the Mississippi State Department of Education.

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| Prerequisite: | None |
| Credit: | 1 unit |
| Length: | 1 year |

SS 626 – University Western Civilization (College credit)

History of Modern Civilization offers qualifying students an opportunity to receive dual credit in World History from MSMS (the World History requirement) and from Mississippi University for Women (His 102). This course surveys the history of civilization from approximately 1300 until the present with an emphasis on the West regarding crucial events, individuals, and institutions. Central goals are to develop the talent to read historical material effectively, formulate clear and coherent arguments, think constructively about historical issues, and transmit ideas through written material. The format of the class is primarily discussion of assigned readings.

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| Prerequisite: | Admission to MUW |
| Credit: | 1 unit high school credit; 3 college credits |
| Length: | 1 year |

SS 650 – Economics

This course will focus on basic economic principles and explore the differences between capitalism, socialism, and communism. The course provides the student with an understanding of the problems of the current U.S. economy. The course will include the use of a textbook, lecture, outside reading, and current events.

Prerequisite: None
Credit: ½
Length: 1 semester

SS 655 – American Government

This course will include a thorough study of the constitution and the amendments as well as the three branches of government. The course will focus on political decision making and include selected Supreme Court decisions as well as other documents illustrating the processes of government. The course will include the use of a textbook, lecture, outside readings, and current event materials.

Prerequisite: Senior standing
Credit: ½
Length: 1 semester

SS 660 – Psychology

This course will provide effective and broad coverage of the field of psychology, including theories, research, and applications. The course is designed to foster an appreciation for the scientific basis of psychology and to build an appreciation of how psychology can increase understanding of the world.

Prerequisite: None
Credit: ½
Length: 1 semester

SS 690 – Special Topics in Social Science

This course is based on individual student interest and may be offered on a one-time or rotating basis. It may concentrate on a specific topic.

Prerequisite: None
Credit: ½ (elective credit beyond required 13.0)
Length: 1 semester

SPECIAL STUDY OPTIONS

Guidelines on Special Study Options

Mentorship, Introduction to Research, and Special Topics courses **are not open to incoming juniors during the fall semester** but may be available to juniors in the spring semester. If you are interested, check with your counselor in the late fall.

MN 101 – Mentorship

This course will provide select students with hands-on experience in a chosen area of work. Students will be placed in an actual work environment in a career field that interests them or an area they will pursue as a college major. Only students who have shown strong commitment to the MSMS ideals of Scholarship, Service, Creativity, and Community and have demonstrated the ability to do exceptional work at MSMS will be placed in mentorship. The student will spend approximately four hours per week with a mentor and attend periodic meetings with other students in the program. **Up to 2 credits of mentorship can be earned at MSMS. However, only the 2nd ½ credit will count toward the 13 MSMS required courses.** Course may be repeated.

Prerequisite: Approval of the Director for Academic Affairs
Credit: ½ (elective)
Length: 1 semester

RE 101– Research

This course is designed to introduce the student to the methodologies employed in research. Extensive out-of-class work is required for successful completion of this course. It is expected that the research performed by the student will lead to a written paper and an oral presentation. Research opportunities exist in numerous departments at universities in addition to on-site research at MSMS and summer research programs. Students are required to enroll in a minimum of two semesters of research. **Up to 2 credits of research can be earned at MSMS. However, only the 2nd ½ credit will count toward the 13 MSMS required courses.** Course may be repeated.

Prerequisite: Approval of the Director for Academic Affairs
Credit: ½ (elective)
Length: 1 semester