

SAMi Course Descriptions

2015-
2016

Mathematics

Algebra 1-2: 9th, 10th, 11th, 12th grade, Pre-requisites: None

In Algebra 1-2, students will study of linear and quadratic functions. Algebra 1-2 is taken concurrently with Applications of Algebra. Please register for both classes. Students take classes as a block.

Algebra 3-4: 9th, 10th, 11th, 12th grade, Pre-requisites: passing grade in Algebra 1-2

In Algebra 3-4, students continue their study of axioms, problem-solving, and functions (linear, quadratic, cubic, higher-order). Students take Algebra 3-4 immediately after Algebra 1-2.

Geometry 1-2: 9th, 10th, 11th, 12th grade, Pre-requisites: passing grade in Algebra 1-2 and 3-4

Geometry is the study of the axiomatic system that relates shapes and angles on a plane. Students take Geometry after Algebra 3-4. Geometry can be taken in combination with Pre-Calculus if a student's schedule allows and teacher permission is granted.

Pre-Calculus 1-2 (CITHS): 9th, 10th, 11th, 12th grade, Pre-requisites: C- or higher in Algebra 3-4

In pre-calculus, students analyze a variety of functions (linear, quadratic, polynomial, rational, exponential), model real-life phenomenon and make predictions from data. Students prepare for the study of calculus in Pre-calc 2 by studying introductory limits and trigonometry. Pre-Calculus is a College-in-the-High School class with Tacoma Community College.

Calculus 1-2 (CITHS): 10th, 11th, 12th grade, Pre-requisites: C- or higher in Pre-Calculus

In calculus, students merge their study of function behavior with geometry, by analyzing derivatives, integrals, limits and series. The study of calculus is complemented by the study of advanced physics. This is a College-in-the-High School class with Tacoma Community College.

Calculus 3-4 (CITHS): 10th, 11th, 12th grade, Pre-requisites: C- or higher in Calculus 1-2

In calculus 3-4, students continue their study of function behavior with geometry, by analyzing limits, series, multivariable calculus, double and triple integrals. Calculus 4 includes the study of rotations. The study of calculus is complemented by the study of advanced physics.

Statistics: 11th, 12th grade, Pre-requisites: passing grade in Algebra 3-4

In this semester course, students will study data descriptors and their use in mathematics, science and humanities. Students will investigate regression, data analysis, validity, and use of the standard bell-curve. This class is highly recommended for all students in junior year, as it will inform many classes taken within the SAMI Pathways for 11th & 12th grade.

Math TIME: 11th, 12th grade, Pre-requisites: Students enrolled in Algebra ¾ class or higher.

Seniors who have not passed a math End of Course exam will register for this class.

This class is designed for students who could use additional time and/or additional practice in math. Students who have previously struggled in math are encouraged to register for this class. The focus of this class will be for students to have additional time to complete assignments and for students to have a location to discuss math concepts. Students will be expected to come to class with current math assignments. Students should register with the same math teacher that they are taking their regular math class with.

Financial Literacy: 11th, 12th grade, Pre-requisites: passing grade in Algebra 3-4

Financial Literacy is focused on building the knowledge and skill to be a financially responsible citizen. This course will investigate a variety of financial decisions that we make throughout our life such as banking, financing, and investing. Students will develop the mathematical skills that they need to live a financially healthy life.

Science

Introductory Biology 1-2: 9th, 10th, 11th, 12th grade, Pre-requisites: none

Biology 1-2 is taken concurrently with Health 1-2, and is taught as an integrated course. Biology is designed to be a class for 9th grade students. Students take classes as a block: 1st/5th, 2nd/6th, 3rd/7th or 4th/8th

Introductory Chemistry 1-2: 10th, 11th, 12th grade, Pre-requisites: Passing grade in Biology 1-2, Alg 1-2

Chemistry will address atomic theory, properties of matter, types of chemical reactions, pH, solution chemistry, and chemical forensics. Chemistry 1 is taken in the fall with Chemistry 2 in the spring. Chemistry is designed to be a class for 10th grade students. Students in 10th grade take Chemistry 1-2 and Physics 1-2

Advanced Chemistry: 11th & 12th grade, Pre-requisites: C+ or better in Chemistry 1-2

In Advanced Chemistry, students will continue their study of atomic theory, properties of matter, types of chemical reactions, pH, solution chemistry, and chemical forensics.

Introductory Physics 1-2: 10th, 11th, 12th grade, Pre-requisites: Passing grade in Biology 1-2, Algebra 3-4 (or by teacher permission)

Physics is the search for underlying truths of physical reality. Students will study Newton's Laws in this introductory lab science course. Physics is designed to be a class for 10th grade students. Students registering for Physics should plan to take Physics 1 in the fall and Physics 2 in the spring.

AP Physics 1: 11th, 12th grade, Pre-requisites: C- or better in Intro Physics 1-2, passing grade in Algebra 1-2, Geometry 1-2.

This year-long course is open to all juniors and seniors who have passed Intro Physics with a C- or better. The class focuses on the big ideas typically included in an algebra-based introductory college-level physics sequence, and provides students with enduring understandings to support future advanced course work in the sciences. Through inquiry-based learning, students will develop critical thinking and reasoning skills, as defined by the AP Science Practices. In addition to going more in-depth with topics seen in Intro Physics (such as exploring extra dimensions of motion and force), students will investigate circular motion, the universal law of gravitation, rotational dynamics, electrostatics, and electric circuits.

AP Physics 2: 11th, 12th grade, Pre-requisites: C- or better in Intro Physics 1-2, passing grade in Algebra 1-2, Geometry 1-2.

This is a year-long course that can be taken before or concurrently with AP Physics 1. It is open to all juniors and seniors who have passed Intro Physics with a C- or better. This course focuses on the big ideas typically included in an algebra-based introductory college-level physics sequence, and provides students with enduring understandings to support future advanced course work in the sciences. Through inquiry-based learning, students will develop critical thinking and reasoning skills, as defined by the AP Science Practices. Topics include thermodynamics, fluid dynamics, electrostatics, circuits (including capacitors), electromagnetic induction, geometric and physical optics, and quantum, atomic, and nuclear physics.

Marine Biology 1-2: 11th, 12th grade, Pre-requisites: C- or better in Chem and Physics

A year-long course that will explore the last frontier on Earth - the ocean environment that covers over 70% of our planet. Concepts and processes in Oceanography, Marine Biology and Ecology, Marine Chemistry and Marine Aquaculture will be addressed. Plan to be outside on a regular basis. Students registering for Marine Sciences should plan to take Marine Science 1 in the fall and Marine Science 2 in the spring.

SAMi Course Descriptions

2015-
2016

Astronomy 1: 11th, 12th grade, Pre-requisites: passing grade in Physics 1-2

This course will explore our current understanding of the universe around us, answering such questions as how big is the universe, how old is the universe and how can we possibly know anything about that stuff way out there. Our investigations will bring history alive as we learn about the development of special and general relativity, the big bang theory, black hole behavior, and hypothesis about the future of the universe.

Geology 1: 11th, 12th grade, Pre-requisites: C- or better in Chemistry and Physics

This course in physical geology will begin with an examination of the forces involved in the formation of the Earth. This includes igneous and volcanic processes, sedimentation, and weathering. Next we will explore the processes currently shaping the Earth's crust, including folds, faults, earthquakes, and plate tectonics. Lastly, we'll delve into what actions sculpt the Earth's surface, from streams and rivers, to glaciers and wind. In class study and controlled labs will be balanced with trips out into the park to explore visible evidence of our region's past.

Anatomy & Physiology: 11th, 12th grade, Pre-requisites: C- or better in Biology and Chemistry

Yearlong course dealing with the structure and function of the human body and mechanisms for maintaining homeostasis within it. Includes the study of cells, tissues, the integumentary, skeletal, muscular, cardiovascular, digestive, and nervous systems. Identification of anatomical structures will occur in the laboratory, with some animal dissection required. Some vertebrate anatomy will also be covered. Will be taught in cooperation with TCC. College credits are available with payment.

Robotics 1: 9th, 10th, 11th, 12th grade, Pre-requisites: none

Explore the applied engineering world of robotics. You will learn mechanics firsthand while designing, building, and programming robots to compete in several local and national competitions. You will have the opportunity to be involved in the many facets of a robotics team including safety, public relations, mentoring, community outreach, finance and construction. Advanced students will have the opportunity to work on advanced robots and develop new systems as well as mentor new team members.

Intro to Engineering Design 1, Pre-requisites: none

This course introduces students to careers in engineering, architecture, or manufacturing. Students will study the fundamental principles of design technology. They will learn to use basic drawing equipment and make common types of drawings.

Engineering Design 2, Pre-requisites: passing grade in Intro to Engineering Design 1

Building on the skills learned in Engineering Design 1, students use industry standard computer-aided design equipment and software. Students will create both 2D and 3D drawings and models.

Engineering Design 3, Pre-requisites: passing grade in Intro to Engineering Design 2

This course allows students who have mastered the skills in Engineering Design 2 to create a product utilizing computer-driven machinery. Teamwork and collaboration are essential employment skills practiced in this class.

Outdoor Education 1 Fall Plants: 9th, 10th, 11th 12th grade, Pre-requisites: none

The first semester of outdoor education focuses on native plants in Point Defiance Park. Students should plan to be outside daily. Outdoor education is highly recommended for all SAMI students.

Outdoor Education 2 Spring Plants: 9th, 10th, 11th 12th grade, Pre-requisites: passing Out Ed. 1

The second semester of outdoor education focuses on ethnobotany of the plants studied in Outdoor Education 1. Students should plan to be outside daily.

SAMi Course Descriptions

2015-
2016

Animal Behavior: 11th, 12th grade, Pre-requisites: C- or better in Biology

This is project-based course providing a foundation in the study of animal behavior, both in the wild and in a zoo setting. In this class you will work as individuals and in teams to learn about the evolution of behavior, specific types of behaviors across animal groups, and the use of operant conditioning to influence the behavior of animals cared for within the Point Defiance Zoo & Aquarium collection. This class is limited to 15.

Ornithology: 10th, 11th, 12th grade, Pre-requisites: C- or better in Biology

This course offers an overview of bird biology and behavior through individual and group project work. Course topics include avian structure and function, classification, and an in-depth independent study project exploring a topic of the student's choice. The course will also include an introduction to bird watching and identifying birds in the field.

Mammal Biology: 10th, 11th, 12th grade, Pre-requisites: C- or better in Biology

This course offers an in-depth look at mammal biology, specifically focusing on mammals in the collection at Point Defiance Zoo & Aquarium, conservation efforts, and research. Course topics will include mammal structure and function, classification, behavior, distribution, biogeography, and the adaptive strategies of mammals.

Marine Ecology: 11th, 12th grade, Pre-requisites: C- or better in Biology

This course will provide an introduction to marine ecosystems and will explore the adaptations and diversity of invertebrate and vertebrates found in this environment. Students will also investigate ocean conservation issues such as climate change and marine debris and develop an awareness and action project.

Forest Ecology 1: 11th, 12th grade, Pre-requisites: passing Biology, Chemistry, Physics, Outdoor Ed 1

Using the forest environment in Tacoma's Point Defiance Park, students will study all aspects of ecology including forest structural development, biogeochemistry, and classification, soils, and wildlife habitat. Students will complete a culminating course project. Students should plan to be outside daily. Pre-requisites: Biology, Chemistry, Outdoor Education

Exploring Computer Science, Pre-requisites: none

An introductory course to explore software design, low and high level programming languages, program development and customization. Students also learn computer theory, computer systems design and user interfaces from a scientific perspective.

Exploring Technologies, Pre-requisites: none

Exploring Technologies provides hands-on projects related to computer science, technology, manufacturing, science, and engineering careers. Students will discover how technology is used in various career fields to improve our world.

Advanced Biology: Neuroscience, Pre-requisites: passing Biology 1 & 2, Chemistry 1 & 2

This course will introduce you to the foundations of the diverse field of neuroscience. This fast-growing field draws from biology and psychology, as well as philosophy, mathematics, and clinical disciplines. We will study neuroscience at different scales: from the microscopic level of single neurons to analysis of behavior stemming from higher brain functions. The ultimate goal of neuroscientists is to understand how animals (including humans) make sense of their environment, and how patterns of activity in the individual cells that make up the nervous system give rise to our ability to think and feel, execute smooth and accurate body movements, and store and retrieve memories. Studying these processes is exciting because it increases understanding of ourselves and other species and has profound implications for the treatment of neurological disorders.

SAMi Course Descriptions

2015-
2016

Environmental Field Biology, Pre-requisites: passing Biology 1 & 2, Chemistry 1 & 2

This College in the High School course is a fully interdisciplinary science and humanities course designed to explore both the environmental and the social aspects of Tacoma and the greater Puget Sound Region.

Humanities

Humanities: 9th, 10th grade, Pre-requisites: None

9th/10th Humanities 1-2 is an integrated course which includes 9th/10th grade English and History. Students take two years to complete the course. Students must take Humanities classes as a block: 1st/5th, 2nd/6th, 3rd/7th or 4th/8th

English: 11th, 12th, Pre-requisites: None

Students will study select literature texts, the writing process and non-fiction. Writing for a varied audience and reading with a variety of purposes will be a focus. 11th/12th grade English fulfills a graduation requirement, and should be registered for both fall and spring semesters. This course is offered as a College in the High School course for ENG101 and ENG102 credit over two years.

CITHS English 102: 12th, Pre-requisites: Senior Students only, Passing ENG 11

This class is offered in the 15-16 school year only for Senior students seeking an additional English credit to earn 5 TCC CITHS English 102 credits in addition to the ENG 101 CITHS credit offered in their regular English 12 class. Students in CITHS English 102 will read and write collegiate level novels and essays. Topics to be determined by instructor.

Historical Essential Debate: 10th, 11th, 12th, Pre-requisites: None

In preparation for college level English, students will explore ideas on important topics through a balance of argumentative and dialogue-based skill development. Development of higher order questioning and evidence-based response, while building on and/or challenging opposing viewpoints (democratic dialogue) will be the bulk of this course. Interdependent group work to carefully examine all sides of an issue, argumentative essays/blogs and culminating large-group seminars will support skill development. Topics will be determined by instructor.

Creative Writing: 9th, 10th, 11th, 12th, Pre-requisites: None

This course provides the student with opportunities to write in a variety of genres, such as short story, poetry, drama, essays, descriptive writing, screen play and children's literature. Students will study writing samples and produce their own creative works.

World Issues: 11th/12th: Pre-requisites: 11th/12th grade status

Students in 11th/12th grade World Issues will study issues related to today's world in light of the sciences studied at SAMI. 11th / 12th grade World Issues fulfills a graduation requirement, and should be registered for either in the fall or spring semester. All juniors and seniors must register for this class. World Issues and Civics are offered on an every other year basis.

The Science of War: 9th, 10th, 11th, 12th grade, Pre-requisite: none

It is said that "Necessity is the mother of invention". This is clearly demonstrated in the development of weapons, technology and medicine in times of war. In this class, you will be researching scientific advancements made for or in response to war. Students will be working on independent research, as well as, presentations and writings of their findings.

SAMi Course Descriptions

2015-
2016

World Language

Spanish 1-2: 9th, 10th, 11th, 12th, Pre-requisites: none

Students will be introduced to the Spanish language and culture in this introductory world language course. Students interested in four-year universities should plan to take 2 consecutive years of world language, as it is an admissions requirement of many schools.

Spanish 3-4: 9th, 10th, 11th, 12th grade, Pre-requisites: passing grade in Spanish 1-2

Students continue their study of the Spanish language and culture, focusing largely on building vocabulary, knowledge and use of verbs, and the many tenses.

Spanish 5-6: 10th, 11th, 12th grade, Pre-requisites: C- or better in Spanish 3-4

Students continue their study of the Spanish language and culture, focusing on conversation and building language capacity.

Spanish 7-8: 11th and 12th grade, Pre-requisites: C- or better in Spanish 5-6

In Spanish 7-8, students continue their study of the Spanish language and culture, focusing on complex conversation and composition. Spanish 7-8 students work in collaboration with students in Spanish 5-6.

French 3-4: 9th, 10th, 11th, 12th grade, Pre-requisites: passing grade in French 1-2 in middle school

Students continue their study of the French language and culture, focusing largely on building vocabulary, knowledge and use of verbs, and the many tenses. This is a pilot course which will combine online learning as well as an in-person component that would require afterschool study. Please register for this course via the Course Request Sheet under "Special Considerations and Notes." (20 student minimum enrollment needed for the course to be offered.)

Art

Creativity in Motion: Foundations of Dance: 9th, 10th, 11, 12th, Pre-requisites: None.

Creative writing is designed to aid students in their creative expression, as well as delivery of one's writing. Students will put this writing into motion through physical and interpretive movement. They will write and workshop short narratives to complete a final portfolio. The second quarter will focus on poetry. Students will learn poetic vocabulary and read and interpret poems of varying styles. Students will write and workshop each other's poetry to complete a final portfolio at the end of the quarter. The class will require students to write daily, discuss, dance, and deliver their work to an audience.

Design 1, Scientific Illustration: 9th, 10th, 11th, 12th grade, Pre-requisites: none

Students are introduced to the elements and principles of design through many genres of art. The emphasis of this course will be on drawing and learning is project based.

Design 2, Botanical Illustration: 9th, 10th, 11th, 12th grade, Pre-requisites: C- or better in Design 1

Continues the study of the elements of design, varying genres of visual arts, and art history. Project based learning through the study of botanical forms.

Advanced Visual Arts 1-2: 1 9th, 10th, 11th, 12th, Pre-requisites: 3 semesters of Visual Arts and written permission from instructor.

Students will work towards building a personal portfolio while exploring various mediums

SAMi Course Descriptions

2015-
2016

Animal Life Drawing: 10th, 11th, 12th grade, Pre-requisites: passing grade in Design 1 & Design 2
Semester Course Fee: \$5 for supplies

Students continue to study the elements and principles of design with emphasis on drawing animal forms from life. Class meets at the zoo.

Men's Choir: 9th, 10th, 11th, 12th grade, Pre-requisites: none

Students in men's choir will sing and perform a variety of music at both SAMI and public events throughout the year. This is a semester class but can be repeated as many times as you want, as we will have different music each semester.

Treble Women's Choir: 9th, 10th, 11th, 12th grade, Pre-requisites: none

Students in treble choir will sing and perform a variety of music at both SAMI and public events throughout the year. This is a semester class but can be repeated as many times as you want, as we will have different music each semester.

Concert Choir: 10th, 11th, 12th grade, Pre-requisites: 1 semester of SAMI choir experience

This mixed choir of both boys and girls will sing and perform a variety of music at both SAMI and public events throughout the year, including formal contests and festivals. This is recommended as a yearlong class, but certain schedule exceptions are available on a case-by-case basis.

Samissimo (Jazz Choir): 10th, 11th, 12th grade: Pre-requisites: audition with instructor)

Samissimo is SAMI's only auditioned choir. Students will perform a wide variety of music including jazz, classical, pop accapella, and world music. Students interested in auditioning should come to P13 on May 7 prepared with a song of their choice to perform. The audition will also include individual sight singing and reading music as a group. This is a year-long class, and students must be able to commit to both semesters to sing in the group. CITHS credits will be offered for Jazz Choir.

Beginning Guitar: 9th, 10th, 11th, 12th grade, Pre-requisites: none

Anyone interested in learning guitar from scratch may take this class. Students must have their own guitar, preferable acoustic. We will play a variety of music, concentrating on basic chords and progressions, basic note reading, and scales. This is a semester long class and may be repeated multiple times. Some students will want to take this class more than once before they are ready for advanced guitar, and others will move on after 1 semester.

Advanced Guitar: 9th, 10th, 11th, 12th grade, Pre-requisites: Beg Guitar or instructor permission

Advanced guitar students will go to the next level of playing guitars, with more scales, chords, and more difficult music. Students will interact with notes and tablature, and as well as some playing by ear. This semester long class may be repeated.

Student Services

TIME: 9th, 10th, 11th, 12th grade, Pre-requisites: none

TIME provides an opportunity for students to improve their organization and student skills, receive tutoring in content areas, and work with peers on individual assignments for other classes. Students should be prepared to both have time to work each class, and to participate in study skills learning activities.

BRIDGE Leadership: 10th, 11th, 12th grade, Pre-requisites: none

Students in the BRIDGE program serve as peer leaders in classrooms. BRIDGE students are supported by a consultant teacher who works to build peer leader capacity and interpersonal skills with each BRIDGE student. Applications for the BRIDGE program are available in the main office, from Ms. Skobel, and Mr. Corley. To sign-up to be a BRIDGE, please fill out an application, and request a particular teacher for whom to BRIDGE.

SAMi Course Descriptions

Student Leadership: 9th, 10th, 11th, 12th grade, Pre-requisites: none

Students in leadership will learn about community development and capitalizing on our collective strengths. We will create social and service opportunities for our entire school community. Topics will include effective and expressive communication, event planning, community service, school-wide culture, and connecting with future SAMI students at other schools. Leadership class is strongly recommended for all elected ASB officers, and open to all other students as well.

STRONG START 9th grade, Pre-requisites: must be a 9th grader

Students will gain the essential skills to make a successful transition from Middle School to High School. Students will receive academic support in the core freshman classes. Freshmen will also develop time management skills, will track their academic progress, and will get a jump start on projects that are required for High School Graduation.

NEXT MOVE Internship CDO 413: Intern Career Choices

Available for Academic Credit: Fall Semester / Spring Semester / Fall + Spring Semester

Pre-Requisite: At least 1 semester of BRIDGE

Strongly Recommended: Relevant courses or experiences in your area of interest

The Next Move Internship Program is designed for students to acquire industry specific skills before graduating from high school in an area of your passion. This program encourages you to focus on your individual post-high school plans through hands-on experience, so that you can gain occupational expertise with the guidance of a local professional. The Next Move Department invites 11th-12th grade students to participate in an Internship as part of the regular academic school day (as 2 or more of your 8 class periods).

While Internships are available for all qualified students during their 11th and 12th grade year, the ideal Internship cycle is:

Fall Semester of 11th Grade: Apply for an Internship (*Intro to Internship* Credit Earned through application process)

Spring Semester of 11th Grade: Participate in *Internship I*

Fall Semester of 12th Grade: Participate in *Internship II*

Spring Semester of 12th Grade: Prepare for graduation, no Internship

Classes are available to SAMi students at the Tacoma School of the Arts (SOTA) (11th – 12th only, 9th & 10th with instructor, mentor and co-director permission)

Please refer to the “academics” tab on the SOTA website (www.tsota.org) for course descriptions and pre-requisites. Students taking classes at SOTA should plan to take 2 courses back-to-back (Example: 1st & 2nd) and travel via our school bus shuttles or student-provided transportation at lunch. SAMI students may take no more than 2 classes per semester at SOTA unless by special permission. Classes must be in the “Elective” category for graduation.