

TEXAS ACADEMY OF MATHEMATICS AND SCIENCE

Media Arts Course Descriptions

Students at the Texas Academy of Mathematics and Science must pass all courses taken. The below course descriptions are taken from the University of North Texas catalog or supplemental materials provided by the professor.

- CHEM 1410** *General Chemistry for Science Majors*
Fundamental concepts, states of matter, periodic table, structure and bonding, stoichiometry, oxidation and reduction, solutions, and compounds of representative elements.
- CHEM 1430** *Laboratory Sequence for General Chemistry*
Laboratory techniques, weighing, errors and significant figures, identification and purification of substances, and elementary quantitative analysis.
- COMM 1010** *Introduction to Communication*
Examination of how communication principles and skills influence our understanding of current social problems such as global climate crisis, health care, and poverty. Focus on communication and community engagement includes experimental learning with community partners. Oral communication skills and collaborative group building skills are emphasized.
- CSCE 1030** *Computer Science I*
Introduction to computer science and engineering, problem solving techniques, algorithmic processes, software design and development.
- CSCE 1040** *Computer Science II*
Continuation of CSCE 1030. Software Design, structured programming, object-oriented design and programming
- ENGL 1315** *Writing about Literature I*
Writing as a means of critical thinking using readings from poetry and drama as sources for essay topics. Emphasis on the process of perfecting the essay through the writing of several drafts.
- ENGL 1325** *Writing about Literature II*
Study of relationship between writing and research with research topics drawn from readings from prose fiction. Emphasis on the process of perfecting the essay through the writing of several drafts.
- HIST 2610** *United States History to 1865*
From colonial origins through the Civil War.
- HIST 2620** *United States History since 1865*
From the Civil War to the present.
- INFO 3010** *Introduction to Data Science*
This course introduces the student to concepts, principles, topics, technologies, and the profession of data science. Students study and understand different types of data and how data can be acquired, stored, organized, analyzed, and presented to meet a variety of needs on data products. Assignments and the term project allow students to handle real-world data challenges. Students learn to use data to answer questions and make informed decisions. The course will explore natural language processing, databases, financial modeling, statistical analysis, social network analysis, and data visualization. Ethical issues regarding data science process are also discussed.

- LING 2050** *The Language of Now: Pop Culture, Technology and Society*
Explores the relationship among pop culture, rapidly changing technology and language change. Examines the linguistic significance of new technologies such as texting, gaming, instant messaging and social networking.
- LTEC 3000** *Foundations of Learning Technology in STEM*
This course focuses on learning across STEM Disciplines using a variety of technologies: cloud computing, mobile devices, MOOCs, virtual labs, etc. Students learn problem-solving and inquiry skills, and apply those to interpret, aggregate, and create arguments based on evidence. Real-world problems with data driven and focused outcomes are used to follow a process, develop a solution, perform analysis, and communicate findings.
- LTEC 3200** *Leadership and Ethical Practices for STEM Professionals*
This course is a study of contemporary leadership practices, ethical issues, and team dynamics related to STEM occupations. It focuses on evidence-based leadership practices while addressing ethical practices that future leaders in STEM occupations might face along with best practices on how to manage in multidisciplinary group environments.
- MATH 1650** *Pre-Calculus*
Preparatory course for calculus: trigonometric functions, their graphs and applications; sequences and series; exponential and logarithmic functions and their graphs; graphs of polynomial and rational functions; general discussion of functions and their properties.
- MATH 1710** *Calculus I*
Limits and continuity, derivatives and integrals; differentiation and integration of polynomial, rational, trigonometric, and algebraic functions; applications, including slope, velocity, extrema, area, volume and work.
- MATH 1720** *Calculus II*
Differentiation and integration of exponential, logarithmic and transcendental functions; integration techniques; indeterminate forms; improper integrals; area and arc length in polar coordinates; infinite series; power series; Taylor's theorem.
- MRTS 2010** *Introduction to Media Arts Writing*
Introduction to media writing and study of the basic theories, methodologies, techniques, principles and formats for the scripting of narrative and non-narrative media, including "New Media." Related software for screenplay, television, industrial and multi-media writing is explored. Required writing course for all MRTS pre-majors.
- MRTS 2210** *Introduction to Media arts Production*
Introduction to basic techniques. Audio, television (studio and location) and single-camera video and film methods are investigated. Includes production exercises and experiments.
- MRTS 2400** *Digital Media Writing*
Emphasis on formats, styles, and how to research content/material. Introduction to converged broadcast information writing with emphasis in talk magazine, sports, long-form documentary and news formats.
- MRTS 2980** *Media Arts Combined*
Introduction to each area of the Media Arts program – media history, analysis and production.
- MRTS XXXX** *Course TBD*
- PHYS 1710** *Mechanics*
Laws of motion; inertia, acceleration, force, energy, momentum and angular momentum. Rotational and oscillatory motion. Gravitation.

PHYS 1730 *Laboratory in Mechanics*
Laboratory to accompany PHYS 1710.

PSCI 2305 *US Political Behavior and Policy*
Explores the connection between the will of the people and the policies implemented by government by focusing on individual political values and attitudes, the mechanisms that connect individual beliefs to government action (parties, interest groups, the media, and elections), and the outcomes of government policy.

PSCI 2306 *US and Texas Constitutions and Institutions*
An introduction to the institutions of government, with particular emphasis on the U.S. and Texas Constitutions. Focus on the structure and powers of the three branches of government (both national and Texas); the division of power between those branches (separation of powers); the division of power between the national and state governments (federalism); and issues related to civil rights and civil liberties. Satisfies the legislative requirement for a course emphasizing the Texas constitution.

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