SCIENCE, MATHEMATICS AND TECHNOLOGY: A.A., A.S., B.A., B.S., B.P.S.

Students of Science, Mathematics and Technology will explore the natural sciences (physics, chemistry and biology), mathematics, computer science and a range of technological, applied-science and health-related fields. You study the fundamental laws and concepts of your concentration, develop your knowledge of scientific methodology and learn the skills important to successful practice and communication, whether you are entering a new field or honing your skills in your current occupation. You will sharpen your skills in critical reading and thinking, as, together with a faculty mentor, you create a program to meet your specific needs and goals.

Why choose a degree in Science, Mathematics and Technology?

There are many career opportunities available to you if you study science, mathematics or technology in a variety of fields. Students who pursue this area of study often are interested in:

- Allied health fields,
- Teaching,
- Computer systems,
- Manufacturing,
- Information systems,
- Environmental sciences, or
- Graduate study.

Degrees Available

As a regionally accredited college of the State University of New York, SUNY Empire State College offers the following degrees in Science, Mathematics and Technology:

- Associate in Arts
- Associate in Science
- Bachelor of Arts
- Bachelor of Science
- Bachelor of Professional Studies[1]
- Combined B.A. or B.S. in Science, Mathematics and Technology/MAT in Adolescent Education

1 BPS degrees are only awarded in Technology, and not in Science, Mathematics and Technology.

Note

- Empire State College does not offer degrees in engineering. You may study the mathematics and the theoretical sciences that comprise the traditional engineering curriculum, but the title of the degree cannot contain the word “engineering.”
- In the sciences there are many opportunities for experimentation, research, and analytical work. These include virtual labs, courses with lab kits, field experience courses and residencies. Students can also engage in scientific internships and pursue college credit for prior learning in their fields. Students should be aware that they may need specific laboratory and/or field courses to meet entrance requirements for graduate studies; they should confirm such requirements with these institutions.

Taking individual courses as a nondegree nonmatriculated student also is possible and will offer you the same range and depth of courses and rigorous standards as matriculated undergraduate students.

Popular Concentrations

- Biology
- Chemistry
- Computer Science
- Environmental Science
- Information Systems
- Information Technology
- Mathematics
- Physics
- Technology

You can focus on a single area such as information systems, or create an interdisciplinary concentration that connects or combines perspectives exploring a theme or topic.

For sample degree programs and other degree planning resources, please visit the School of Science, Mathematics and Technology web page (https://www.esc.edu/undergraduate-studies/school-science-mathematics-technology/).

These area of study guidelines address the broad needs of students interested in pursuing degrees in Science, Mathematics, and Technology. Bachelor’s degree programs must fully address five program outcomes, which align with the SUNY Empire State College Learning Goals.

Degree programs at the associate level must also address these five program outcomes, minimally at the introductory level. Foundational knowledge in their field prepares students for progression to the bachelor’s degree.

Students must discuss in their rationale essay how each outcome is met in ways relevant to their field. Learning related to these outcomes can be demonstrated through coursework and prior learning.

Students should refer to the college’s concentration guidelines for program outcomes specific to their fields. Otherwise, students must research their field and describe academic and professional expectations for their concentration in their rationale essay.

Knowledge in science, mathematics, and technology is continually evolving. Thus, degree programs should demonstrate currency in their fields. In addition, students are expected to develop life-long learning skills and engage in ongoing inquiry to acquire new knowledge and maintain currency.

Degree Program Outcomes
Students earning degrees in Science, Mathematics, and Technology will achieve the following program outcomes:

Foundation #1: Breadth and Depth of Knowledge
Associate and bachelor’s

- Learning Outcome: Students will demonstrate a conceptual understanding of their field by articulating foundational knowledge, including key concepts, methodologies, and theories.

- Learning Outcome: Students will demonstrate a conceptual understanding of their field by explaining how their program includes breadth of knowledge in their subject area.

Bachelor's

- Learning Outcome: Students will demonstrate a conceptual understanding of their field by demonstrating how their program progresses from introductory-level to advanced-level knowledge.

Foundation #2: Problem Solving and Critical Thinking
Associate and bachelor's:

- Learning Outcome: Students will demonstrate skills to analyze and solve unique situations and problems by designing, implementing, and evaluating strategies for answering open-ended questions for which solutions are not immediately evident.
- Learning Outcome: Students will demonstrate skills to analyze and solve unique situations and problems by thinking critically and objectively about problems and identifying the best solutions.

Foundation #3: Methodological, Quantitative, and Digital Expertise
Associate and bachelor's:

- Learning Outcome: Students will demonstrate a working knowledge of investigative, quantitative, and technological approaches and skills to engage in their fields by applying the quantitative and technical skills necessary to engage in their fields.
- Learning Outcome: Students will demonstrate a working knowledge of investigative, quantitative, and technological approaches and skills to engage in their fields by evaluating information, analyzing data, and utilizing technologies relevant to their disciplines.

Foundation #4: Communication
Associate and bachelor's:

- Learning Outcome: Students will demonstrate the skills needed to communicate scientific, mathematical, and/or technical concepts to a variety of audiences.

Foundation #5: Social Responsibility
Associate and bachelor's:

- Learning Outcome: Students will demonstrate an awareness of the societal context in which science, mathematics, and technology operate by demonstrating a social awareness in order to understand the interplay between their field and society.

Bachelor's:

- Learning Outcome: Students will demonstrate an awareness of the societal context in which science, mathematics, and technology operate by applying ethical principles and evaluating the impact of activities and research on their field and on society.
- Learning Outcome: Students will demonstrate an awareness of the societal context in which science, mathematics, and technology operate by analyzing multiple issues including diversity, equity, sustainability, gender, or social justice in their field.