The Annual Science and Engineering Fair
The Fair is affiliated with the International Science & Engineering Fair (ISEF) and provides an opportunity for students to display the results of their research work.

UNC Charlotte Super Competition
Super Competition is an annual outreach event consisting of a day of academic competitions for high school students. It is held in cooperation with the departments of Mathematics and Statistics; Chemistry; and Physics and Optical Science.

The North Carolina Student Academy of Science
The NCSAS is an organization for students in grades 6-12 in alliance with the North Carolina Academy of Science (NCAS). Students who have completed research projects compete at the district and state levels and receive feedback from research scientists in their field.

NC Science Olympiad (NCSO)
NCSO is a nonprofit organization with the mission to attract and retain the pool of K-12 students entering science, technology, engineering, and mathematics (STEM) degrees and careers in North Carolina. NCSO events are designed to enhance and strengthen both science content and process skills.

NC Junior Science and Humanities Symposium (JSHS)
JSHS is designed to challenge and engage high school students in science, technology, engineering or mathematics (STEM). Individual students compete for scholarships by presenting the results of their research projects before a panel of faculty judges.

**“STEM education creates critical thinkers, increases science literacy, and enables the next generation of innovators.”** Francis Eberle

Center for Science, Technology, Engineering, and Mathematics Education is to promote a regional vision for STEM education and outreach, to increase capacity in leadership, and to facilitate collaborative partnerships for addressing STEM priorities for PreK-16.
The Center for Science, Technology, Engineering, and Mathematics (STEM) Education at UNC Charlotte is dedicated to strengthening and expanding the teaching and learning of science, technology, engineering and math PreK-16. The Center for STEM Education:

- Provides professional development to meet the needs of the growing STEM-focused educational community in ten counties and the Kannapolis City School System.
- Works through collaborative partnerships with regional schools, community colleges, businesses and industries, state and local agencies, and outreach organizations.
- Operates the NC MSEN Pre-College Program; the Summer Ventures in Science and Mathematics (SVSM) Program, and annual STEM student competitions.

## Professional Development

Professional development programs in science, technology, engineering and math enhance teacher learning. The Center for STEM Education is committed to providing high quality professional development programs that support state and national educational standards in collaboration with local school districts and other institutes to meet the needs of educators. These include:

- Summer & Academic-Year Institutes
- Advanced Placement Institutes
- Special Projects with School Districts
- Week-Long Field Experiences
- Annual Regional K-12 STEM Conference

## STEM Education Highlights

### Summer Institutes in Teaching Excellence (SITE) Science PreK-2; 3-5; 6-8; Biology

SITE PreK-2, SITE 3-5, and SITE 6-8, and Biology Science Institutes run nine days (five days in the summer and four days during the school year). The SITE Institutes focus on the major themes that cut across the NC Science Standard Course of Study and are designed to deepen participants' science content knowledge and to strengthen their ability to teach science through inquiry.

### MINDSET

Mathematics INstruction using Decision Science and Engineering Tools (MINDSET) uses decision-making tools from Industrial and Systems Engineering and Operations Research in a fourth-year high school mathematics curriculum. Mindset improves upon the math students’ ability to formulate and solve multi-step problems and interpret results. The project is supported by the National Science Foundation and partners include UNC Charlotte, Wayne State and NC State.

### Engineering Is Elementary

The Engineering is Elementary (EiE) project fosters engineering and technological literacy among children. EiE lessons connect STEM learning with literacy and social studies. EiE helps elementary school educators enhance their understanding of engineering concepts and pedagogy.

### Math Investigations

Investigations is a complete K-5 mathematics curriculum, developed at TERC in Cambridge, Massachusetts. Professional development supports implementation of curriculum including deepening teacher’s content and pedagogical knowledge skills. Supported by a grant through the NC Mathematics and Science Partnership.

### Advanced Placement Summer Institutes

Advanced Placement Institutes in cooperation with The College Board are offered for both new and experienced teachers. The Summer AP Institutes offer a valuable opportunity to strengthen teaching skills, share ideas with other teaching professionals, and update teaching credentials.

## Student STEM Programs

The goal of the NC MSEN Pre-College Program is to broaden the pool of students pursuing STEM-based majors and careers. The UNC Charlotte NC MSEN Pre-College Program actively recruits and prepares students of average to above average ability in grades 6-12 from the UNC Charlotte area. The NC MSEN Pre-College Program is composed of 3 major components:

- Summer Scholars
- Saturday Academy
- Parents Involved for Excellence (PIE) Club

The Research Experience for 11th and 12th Grade Student Internship Program is designed to engage participants in faculty-mentored research at UNC Charlotte. The students develop a greater understanding of the research process, learn how to utilize technology, and acquire the fundamental skills used in research.

Summer Ventures in Science and Mathematics (SVSM) is a cost-free, state-funded program for academically talented students who may pursue careers based in science and mathematics. The program brings rising juniors and seniors together in residential settings for four weeks of intensive study.

The Center supports the newly organized Urban Student Alliance for STEM Education at UNC Charlotte. The Alliance is designed to promote awareness of teaching and learning of STEM in NC schools and communities. Alliance members are graduate and undergraduate students interested in STEM education.