



Academy of Holy Angels

STEM Diploma

(Updated for the Class of 2022)

The faculty of AHA believes that four years of core course study in science, mathematics and technology, that incorporates the principles of engineering, is the best preparation to enter prestigious college and university programs in science, technology, engineering and mathematics. Students in all AHA mathematics and science courses achieve the essential elements of a STEM program

The STEM diploma recognizes those students who have dedicated themselves to mastery of this rigorous course of study and who can demonstrate and apply 21st Century Skills in Critical Thinking, Creativity, Communication and Collaboration in the curriculum and co-curricular areas.

Learner Outcomes

Science: By completing four years of core science courses, inclusive of biology, chemistry and physics, students will be prepared to enter an advanced college science program.

Technology: By completing courses in fine and practical arts and computer science, students will develop a deeper understanding of computer systems and be able to use and apply computer software skills in CAD, Word and Excel and be able to use industrial equipment to design and build 3-D objects, model buildings or robots.

Engineering: By learning and applying the Engineering Design Process, in the mathematics and science courses, students will be able to identify a problem, create a solution and test it.

Mathematics: By completing four years of core mathematics courses, including Advanced Pre-Calculus, Pre-calculus, Calculus or AP Calculus, students will be able to enter Calculus I or Calculus II in first year college programs.

Science Requirements

Four years of science including one AP science course (AP Biology, AP Chemistry, AP Physics I or AP Physics II) with a minimum grade of C.

Technology / Engineering Requirements

Completion of at least two trimesters from any of the following technology courses with a minimum grade of C:

- AP Computer Science
- Introduction to Computer Science
- Engineering Technology in Science
- CAD (Computer Aided Drafting)
- Computer Art
- Web Page Programming
- Introduction to Digital Photography
- Theater Design and Technical Production
- Architectural Model Building
- Woodworking I or Woodworking II

Math Requirements

Four years of math including the completion of Pre-Calculus, Advanced Pre-Calculus, Calculus or AP Calculus or higher with a minimum grade of C.

STEM Experience Requirements

1. Job Shadow with a scientist, engineer, dentist, physician or similar professional in the area of science, mathematics or technology (6-hour minimum).
2. All students must complete two additional STEM experiences from the following list:
 - Research project (pre-approved)
 - Summer internship
 - Job Shadow (different from the first job shadow experience)
 - Volunteer in a lab
 - Participation in a STEM activity/ club (Robotics, Math STARS!, Knowledge Bowl or other similar group) for two years (letter earned)
 - Other project, workshop, or course approved by the STEM coordinator
 - Presentation of STEM Diploma at STEM Fair

Communication Requirements

It is important that all STEM students be able to communicate their experiences to others.

- Letter of Intent for STEM Diploma completed by the beginning of 12th grade
- Completion of Job Shadow / Additional Experiences logs and reflection essay
- Submit the STEM Diploma Application and supporting paper work to STEM Diploma Coordinator

Using and exploring creativity is essential. For related coursework, try: Introduction to Drawing, AP Studio Art, Anatomy and Physiology, Engineering Technology in Science, Public Speaking & Presentation Styles, Moral Philosophy, Music, Starlight Productions – Set Design, Speech Team.



Class of 2021 STEM Diploma Recipients are attending:

Bemidji State University	Michigan Technological University	University of MN-Duluth
College of St. Scholastica	Marquette University	University of Notre Dame
College of St. Benedict	Northeastern University	University of Portland
Creighton University	Purdue University	University of Wisconsin-Madison
Drake University	St. Louis University	Univ. of Wisconsin-Milwaukee
Iowa State University	St. Olaf University	Univ. of California-Santa Barbara
Lake Forest College	University of MN-Twin Cities	University of St. Thomas
Loyola University, Chicago		University of Tampa

From STEM students

"...One of the best parts of being a doctor is that your profession, as well as the professions around you, are always changing and people are always making new discoveries. I have come to appreciate the meaning of hands-on experience. I would never have gained so much knowledge about being a medical professional in such a short period of time. I learned that I have to stretch myself and step out of my comfort zone in order to acquire the knowledge I need."
~Tommy McCoy, shadowed at Methodist Hospital, now attending University of Notre Dame.

All student STEM experiences are unique and reflect the interests and aptitudes of students and their post-secondary pursuits. Some examples include scientific chemical and biomedical research through local universities, or international medical shadow experiences:

- *Daniela Alfonzo completed a medical observation in India during the summer of her junior year following her participation as a delegate in the Congress of Future Medical Leaders the precious year.*
- *Mary Kate Eiden completed her medical shadow at an orphanage in Honduras where she worked closely with a doctor and assisted in minor medical procedures while applying her Spanish proficiency.*
- *All student STEM experiences are unique and reflect the interests and aptitudes of students and their post-secondary pursuits.*
- *Now with our newly completed iCenter, opportunities abound for independent research and collaboration with hospitals and companies across the Twin Cities*