



# Scouting America™

## STEM Merit Badge College 2026 Class Catalog

### Event Contacts

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## Class Catalog

STEM Merit Badge College 2026 at Purdue Northwest Student Union & Library Building

### Merit Badge Academy (Scheduled Classes)



#### MBAL999 Artificial Intelligence (AI) (2025 version)

The Artificial Intelligence (AI) Merit Badge introduces Scouts to the fundamentals of AI and automation through hands-on activities and real-world examples. Scouts learn key terms, explore how AI and automation are used in daily life, school, and work, and examine ethical concerns like bias and privacy. They also investigate deepfakes, practice communicating effectively with AI, and apply their knowledge through a project or teaching activity. Finally, Scouts explore career paths in AI by researching or interviewing professionals in the field.

9-12 PM

**Instructor:** Dan Vergauwen

**Maximum number of participants:** 10

**Prerequisites:** Prerequisites: Familiarize yourself with Scoutly the AI chatbot @ <https://www.scouting.org/>. We will be using Scoutly along with other open-source AI tools.

1: Key Concepts. Define the following terms and share the meaning of each with your counselor: artificial intelligence (AI), artificial intelligence agents, automation, basic programming, bots, data, databases, digital workers, general AI, machine learning (ML), narrow AI, superintelligent AI, tasks, triggers, workflows, and variables.

2A: Identify ten examples of how AI is currently used in everyday life.

2B: Identify five examples of how AI is currently used in the workplace.

2C: Identify five examples of how AI can be used at school or in support of your education.



#### MBAL998 Chemistry

Chemistry explores how substances react with each other, how they change, how certain forces connect molecules, and how molecules are made are all parts of chemistry. Stretch your imagination to envision molecules that cannot be seen - but can be proven to exist - and you become a chemist.

9-12 PM

**Instructor:** John Bell

**Maximum number of participants:** 10

**Prerequisites:** Prerequisites: 1, 2a, 4, 5,6,7,8.

For #4, choose 2 options.

For #1, 5, 6, 7, and 8, complete these entirely.

For prerequisites, bring answers in a hard-copy document that we can review and discuss, preferably printed rather than handwritten. ( Anything illegible won't be accepted. )



#### MBAL997 Cybersecurity (2025 version)

The Cybersecurity Merit Badge equips Scouts with essential knowledge and skills to navigate and protect the digital world. Scouts learn about online safety, ethical behavior, cyber threats, and how to defend against them using tools like firewalls, antivirus software, and strong passwords. They explore encryption, connected devices, and the risks of public Wi-Fi, while also practicing safe habits like updating software and backing up data. Through hands-on activities, Scouts investigate real-world cyber incidents, participate in cybersecurity challenges, and explore career opportunities in the field.

1-4 PM

**Instructor:** Dan Vergauwen

**Maximum number of participants:** 10

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**Prerequisites:** Prerequisites:

1A: View the Personal Safety Awareness "Digital Safety" video (with your parent or guardian's permission). <https://www.scouting.org/training/youth-protection/scouts-bsa/>

1B: Explain to your counselor how to protect your digital footprint, such as while using social media, mobile device apps, and online gaming. Show how to set privacy settings to protect your personal information, including photos of yourself or your location. Resource: Protecting Your Digital Footprint - Keys to Cybersecurity (website)

Use the resource above and complete the activity. Bring a copy of your completed certificate or a photo on your phone

4E: Current Events. Do ONE of the following:

(1) Read an article or a news report about a recent cybersecurity incident, such as a data breach or malware infection. Explain how the incident happened (to the best of your ability based on the information available) and what the consequences are or might be to the victim.

(2) With your parent or guardian's permission, watch a movie or read a book in which cybersecurity plays a significant role. Discuss how cybersecurity topics were depicted and how realistic you think it was. Resources: Suggested Movies: WarGames (1983, PG), Tron (1982, PG), Code 2600 (2011 Documentary, PG), Superman III (1983, PG), Scooby-Doo and the Cyber Chase (2001, Not Rated), Cyber War 2022 (2023 Documentary, G), Hackers (1995, PG-13), Terms and Conditions May Apply (2013 Documentary, Not Rated), Cyber War (2016 Documentary, Not Rated), and Zero Days (2016 Documentary, PG-13).

6A: (a) Research and explain to your counselor three situations where encryption is used in cybersecurity. For each situation, describe what kind of encryption is used and why it is important.



### MBAL996 Digital Technology

Technology has come a long way since Computers merit badge was first introduced in 1967. This badge will teach Scouts about technology in the digital age.

1-4 PM

**Instructor:** Mike Failor

**Maximum number of participants:** 15

**Prerequisites:** Prerequisites (Must Be Completed Before Class):

1. Requirement 1: Complete the Digital Safety (Cyber Chip) requirement.
2. Requirement 6: Complete THREE digital projects (examples: spreadsheet roster, flyer, letter, presentation, graphic, etc.). Scouts must bring either printed copies or a flash drive/cloud access to show their work.

Strongly Recommended (to ensure completion during the session):

- Research one digital technology career (Requirement 9).
- Identify a local e-waste or battery recycling center (Requirement 8).

What to Bring:

- A smartphone, tablet, or laptop with internet access (if possible).
- Their three completed digital projects.
- A notebook and pen.



### MBAL995 Environmental Science (2025 version)

While earning the Environmental Science merit badge, Scouts will get a taste of what it is like to be an environmental scientist, making observations and carrying out experiments to investigate the natural world.

9-12 PM

**Instructor:** Larry Desch

**Maximum number of participants:** 15

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### MBAL994 Nuclear Science (2026 version)

Nuclear science gives us a simple explanation of the natural world. The ultimate goal of nuclear science is to find out if there is one fundamental rule that explains how matter and forces interact. Earning the Nuclear Science merit badge is a chance for Scouts to learn about this exciting field at the cutting edge of science today.

9-12 PM                    **Instructor:** Joe Sagerer  
                                  **Maximum number of participants:** 10



### MBAL993 Robotics (2026 version)

Build your own working robot with the Robotics Merit Badge. Learn about the robotics industry, discover the different fields of robotics, explore the available career options in robotics, and design, build, program and test your own robot.

9-12 PM                    **Instructor:** Michael Sommer  
                                  **Maximum number of participants:** 8  
1-4 PM                     **Instructor:** Michael Sommer  
                                  **Maximum number of participants:** 8  
                                  **Prerequisites:** Prerequisite: Requirement 4



### MBAL150 Space Exploration

Space is mysterious. We explore space for many reasons, not least because we don't know what is out there, it is vast, and humans are full of curiosity. Each time we send explorers into space, we learn something we didn't know before. We discover a little more of what is there.

1-4 PM                     **Instructor:** Casey Kennedy  
                                  **Maximum number of participants:** 10  
                                  **Prerequisites:** Prerequisites: 2, 5, 7, and 8

The primary goal in this class is to complete requirement 3: build and launch a rocket twice (weather permitting). If the weather is bad, we will build the rockets, identify the parts, and discuss the current Artemis 2/Orion mission. All materials will be provided. If the weather is good and have enough time, we will cover requirement 1. If the weather is bad, we'll do requirements 1, 4, and 6. For prerequisites, Scouts should bring their answers in a hard-copy document to review and discuss, preferably printed rather than handwritten. ( Anything illegible won't be accepted. )