



PROGRAM SUMMARIES 2018

PROGRAM	CAMPUS	LOCATION	AGES	DAY	LENGTH	DATES	COST*
Advanced Design	CCCC	Hyannis	Grades 8 - 9	Full Day	5-day week	July 30 - August 3, 2018	\$329
Advanced EMT Exploration	CCCC	Hyannis	Grades 7-9	Full Day	5-day week	July 30 - August 3, 2018	\$329
Construction Exploration	CCCC	West Barnstable	Grades 7 - 9	Full Day	5-day week	July 23 - 27, 2018	\$299
EMT Exploration	CCCC	West Barnstable	Grades 6-8	Full Day	5-day week	July 23 - 27, 2018	\$299
Exploration of Robotics and Game Design	UMD	Dartmouth	Ages 11 - 14	Full Day	5-day week	July 9 - 13 or July 16 - 20, 2018	\$180
Look What I Created!	MCC	Canton	Grades 3 - 5	9 am – 2 pm	Two 5-day weeks	July 9 - 20, 2018	\$399
Maker Movement: Build a Bot	CCCC	West Barnstable	Grades 6 - 8	Full Day	5-day week	August 6 - 10, 2018	\$299
Mobile App Development	UMD	Dartmouth	Ages 11 - 14	Full day	5-day week	August 6 - 10, 2018	\$180
Science Investigative Team	MCC	Canton	Grades 6 - 8	9 am – 2 pm	Two 5-day weeks	July 30 – August 10, 2018	\$399
Sea, Science & Leadership Program - SSLP	MMA	Buzzards Bay	Grades 9 - 12	Full Day/overnight	4-day, 3 night	July 29 – August 1, 2018	\$425
Summer Science Academy	BSU	Bridgewater	Grades 6 - 8	Full Day	5-day week	3 Sessions: July 9 - 13; July 16 - 20; July 23 - 27	\$400
Summer Science Academy	BSU	Bridgewater	Grades 9 -12	Full Day	5-day week	3 Sessions: July 9 - 13; July 16 - 20; July 23 - 27	\$250-\$500

**Most programs offer scholarships to students unable to afford regular tuition.*

Advanced Design

SPONSOR: Cape Cod Community College

WHERE: Cape Cod Community College, Hyannis Center, Hyannis

WHO: 8th – 9th grade students

WHEN: July 30 – August 3, 9:00 a.m. – 4:00 p.m.

COST: \$329

CONTACT: Mary Conklin, (508) 375-5010 mconklin@capecod.edu

WEBSITE: <http://www.capecod.edu/web/ccpe/summer-of-science>

WHAT: Advanced Design is a creative, STEM-based, week-long program for students entering grades 8 and 9. The program will focus on developing cutting edge technology skills in Photoshop, Illustrator, InDesign and Muse. These programs make up many of the core elements that professional designers use. Students will work with Photoshop on projects such as photo manipulation, combination, and improvement. When using Illustrator, students will learn about digital drawing, typography and create their own logos. Exploring projects such as poster designs, students will grow their understanding of layout and creative design principles. Students will also work with Augmented Reality - the same techniques used to create Pokemon Go, and Google Glasses. Students will use Muse to first explore how to design a visually appealing, and easy to navigate an "app". Then each student will create their own website that will allow them to showcase the work they have done. In addition to the hands on skills using Adobe Creative Suite, students will learn the "why" of design. Why does one design look better than another? As well as how to create a visually pleasing image.

Advanced EMT Exploration

SPONSOR: Cape Cod Community College

WHERE: Cape Cod Community College, West Barnstable

WHO: 7th – 9th grade students

WHEN: July 30 – August 3, 9:00 a.m. – 4:00 p.m.

COST: \$329

CONTACT: Mary Conklin, (508) 375-5010 mconklin@capecod.edu

WEBSITE: <http://www.capecod.edu/web/ccpe/summer-of-science>

WHAT: This week-long Advanced EMT Exploration program for students who have completed basic Summer of Science EMT Exploration and/or students entering grades 8 and 9. Students will have the ability to further enhance their emergency medical education by surveying various advanced concepts including: CPR Recertification, EPI-PEN education and practice with EPI Pen trainer, International Federation of Animal Welfare disaster presentation and Animal First Aid' Mobile Hospital Simulator to practice basic skills learned, Mobile Healthcare Delivery services orientation, Aeromedical Evacuation orientation and helicopter tour (weather and call dependent), Outdoor basic search and rescue techniques, USCG Water Safety presentation, Vitals Signs practical review and scenario based discussions

Construction Exploration

SPONSOR: Cape Cod Community College

WHERE: Cape Cod Community College Campus, West Barnstable

WHO: 7th – 9th grade students

WHEN: July 23 – 27, 9:00 a.m. - 4:00 p.m.

COST: \$299

CONTACT: Mary Conklin, (508) 375-5010 mconklin@capecod.edu

WEBSITE: <http://www.capecod.edu/web/ccpe/summer-of-science>

WHAT: Construction Exploration week is a STEM-based, week-long program for children entering grades 7, 8, and 9. The program provides children with a fun, interactive, hands-on experience in the fundamentals of Architecture, Construction, and Engineering and raises awareness of careers in the construction trades. The children are provided with the tools, skills, and resources to build projects they can take home and share with their parents. Children will also learn from professionals in the field through onsite demonstrations.

EMT Exploration

SPONSOR: Cape Cod Community College

WHERE: Cape Cod Community College, West Barnstable

WHO: 6th – 8th grade students

WHEN: July 23 – 27, 9:00 a.m. – 4:00 p.m.

COST: \$299

CONTACT: Mary Conklin, (508) 375-5010 mconklin@capecod.edu

WEBSITE: <http://www.capecod.edu/web/ccpe/summer-of-science>

WHAT: EMT Exploration is a STEM-based, week-long program for children entering grades 6, 7, and 8. The program offers a fun, interactive, learning opportunity for children in the region to explore the EMT profession. Students will become familiar with emergency services, investigate emergency equipment operations, and learn basic first-aid procedures. Students will talk about important procedures in medical and fire emergencies, and learn what EMT's have to do in an emergency and rescue operation. This program will teach children important lifesaving skills (CPR/First Aid/AED Training) and how to be prepared to act in an emergency.

Exploration of Robotics and Game Design

SPONSOR: University of Massachusetts Dartmouth

WHERE: UMass Dartmouth campus

WHEN: Two separate one-week sessions, July 9-13 and July 16-20, 2018, 9:00 a.m. - 4 p.m.

WHO: Students ages 11-14

COST: \$180.00 per student per week; \$30.00 deposit should be mailed with application.

CONTACT: Sheryl Sears, s.sears@umassd.edu or 508-999-8457

WEBSITE: <http://www.umassd.edu/engineering/cis/cissummercamp/>

WHAT: Campers will work in teams to design a simple computer game, to make the robots move the way they want them to, and to develop a mobile application. Campers will work in teams with our teachers and students and on the last day will show parents how smart and talented they are and what they have accomplished. Campers will make new friends, have fun, and experience the value of teamwork. This camp may inspire you to choose computers as your career in the bright future ahead of you!

Look What I Created!

SPONSOR: Massasoit Community College

WHERE: Massasoit Community College, Canton Campus

WHO: Elementary students (grades 3 - 5)

WHEN: July 9 - 20, 9:00 a.m. - 2 p.m.

COST: \$399

CONTACT: Shannon Skelly, sskelly@massasoit.mass.edu

WEBSITE: <http://www.massasoit.edu/science4kids>

WHAT: This two-week session will introduce students to basic concepts in science, math and engineering. Our goal is to spark scientific imagination through creative and challenging projects. We encourage teamwork and social responsibility. Is there an idea for constructing a bridge lurking in the back of your brain that we can test? Would you like to learn how to design and build a simple machine? Would you like to try your hand at studying habitats where local animals live? This is your chance to test your ideas or simply find out how things work. We'll explore our world through science and use math to explain what happened. Team projects can include many topics. Sign on to join this investigative team and let's head outdoors together to have some fun, to look at the world around us, and to figure out how does "that" work. Warning: you may never look at science and math the same way again after having this much fun! Students will need to bring a snack and lunch.

Maker Movement

SPONSOR: Cape Cod Community College

WHERE: Cape Cod Community College, West Barnstable

WHO: 6th – 8th grade students

WHEN: August 6 – August 10, 9:00 a.m. – 4:00 p.m.

COST: \$299

CONTACT: Mary Conklin, (508) 375-5010 mconklin@capecod.edu

WEBSITE: <http://www.capecod.edu/web/ccpe/summer-of-science>

WHAT: Maker Movement is a STEM-based, week-long program for students entering grades, 6, 7, & 8. From building simple circuits to working with Arduino, a powerful and easy-to-use open source prototyping platform, students will learn through active engagement as they explore concepts in electricity & magnetism, computer science, and robotics.

Mobile App Development

SPONSOR: University of Massachusetts Dartmouth

WHERE: UMass Dartmouth College of Engineering

WHEN: August 6 – 10, 9:00 a.m. – 4:00 p.m.

WHO: Students ages 11-14

COST: \$180.00

CONTACT: swe@umassd.edu or s.sears@umassd.edu

WEBSITE: <http://www.umassd.edu/engineering/appcamp/>

WHAT: Campers will engage in developing new applications using App Inventor – an open-source visual, drag-and-drop, web-based tool for building mobile applications. Campers will be able to create user-interfaces using the drag-and-drop interface. The camp will begin with basic introduction to the coding and user interface and progress towards creating real applications for Android devices. This introduction to coding will help develop problem-solving and critical thinking skills.

Science Investigative Team

SPONSOR: Massasoit Community College

WHERE: Massasoit Community College, Canton Campus

WHO: Middle School students (grades 6 - 8)

WHEN: July 30 – August 10, 9:00 a.m. - 2 p.m.

COST: \$399

CONTACT: Shannon Skelly, sskelly@massasoit.mass.edu

WEBSITE: <http://www.massasoit.edu/science4kids>

WHAT: Students will investigate the world around them through the eye of an engineer using science and math. Test materials to determine their characteristics then use what you learn to create your own unique design. Then we'll put your design to the test to see how it works. We'll explore a variety of topics that are fun and interesting, such as ecology, health and the body, physics and the environment. Let's work together with team games and eye opening hands on activities. Students will need to bring a snack and lunch.

Sea, Science, and Leadership Program (SSLP)

SPONSOR: Massachusetts Maritime Academy

WHERE: Massachusetts Maritime Academy, 1 Academy Drive, Buzzards Bay, MA 02532

WHEN: July 29-August 1, 2018; four days, three nights

WHO: High school students

COST: \$425

CONTACT: Kristen Riley, kriley@maritime.edu, or 508-830-6686

WEBSITE: <https://www.maritime.edu/sea-science-and-leadership-program-sslp>

WHAT: The mission of the Sea, Science and Leadership Program (SSLP) at Massachusetts Maritime Academy is to provide high school students with interactive, educational workshops that build confidence, challenge decision-making skills that develop and strengthen leadership qualities. SSLP will immerse participants in the educational and regimental lifestyles of a cadet through hands-on workshops that include the use of ship-handling simulators, small boats, an emergency management control room, engineering labs, and the 540 ft. T.S. Kennedy (pending availability). SSLP will prepare participants for the college admissions process, build lifelong friendships and educate participants on the career opportunities Massachusetts Maritime Academy offers. Some activities may include:

- **Cold Water Survival:** Don cold water exposure suits, jump into the ocean, climb into an inflatable life raft and learn the rescue operations of cold water survival.
- **Emergency Management Simulation:** Learn how to respond to a virtual oil spill in Boston Harbor by operating response vessels managing cleanup activities through the use of our Emergency Management Control Room.
- **Environmental Issues:** Discuss the impact of the changing climate on your local environment and the maritime industry. Discussions are facilitated by professors and students collect samples during the workshop to highlight topics covered in class.
- **Firefighting:** Experience the thrill and excitement of learning how to assist your shipmates to safety on board vessels while also charging hoses and wearing Scott Air Packs
- **Navigation/Radar Operations:** Learn the basic principles of navigation, charts and radar operations including hands-on activities in the Academy's Radar Laboratory*
- **Ship Handling Simulator:** Operate the Academy's newest marine 360 degree ship handling simulator through virtual New York City Harbor or Hong Kong Harbor.*
- **Small Boat Maneuvering:** Utilize Academy motor whaleboats at the waterfront including the use of the Training Vessel Ranger* while learning nautical commands.

Summer Science Academy

SPONSOR: The Center for the Advancement of STEM Education at Bridgewater State University

WHERE: Bridgewater State University's Main Campus

WHEN: Three separate one-week sessions, July 9-13; July 16-20 and July 23-27. Grades 6-8 program hours are 8:30 AM -4:00 PM. Grades 9-12 program hours are 9:00 AM -4:30 PM

WHO: Students entering grades 6-12 in the fall of 2018.

COST: \$250 -\$500 per student per week (does not include lunch or transportation)

CONTACT: (508) 531-2575 or CASEBSU@bridgew.edu

WEBSITE: <http://microsites.bridgew.edu/case/summer-science-programs>

WHAT: The Summer Science Academy offers one-week science classes for students entering grades 6-12 in the fall of 2018. This unique program allows students to work as scientists and is designed to inspire students about science while providing them with the foundations necessary for further scientific exploration. Summer Science Academy students are immersed in science courses and conduct hands-on investigations in their selected class. Students in classes for grades 6-8 will also participate in extracurricular science activities. All classes focus on the importance of science communication as students lead presentations on the last day of class.

- **Shipwrecked: Exploring the STEM of Maritime Archaeology** (Entering grades 6-8) – Bridgewater Campus (July 9-13)
Come join us where history meets science at the water's edge! Ever wonder what causes shipwrecks, and how scientists explore, study, and map them and other artifacts under water? Now you can find out! This program teaches the concepts, methods, and technology used in the field of maritime archaeology -- and applies them to real-world, hands-on experiences like documenting an actual shipwreck!
Please note that students access shipwrecks from the shore and will be in water no deeper than 2-3 feet. All students will wear waders provided by the program. Outdoor activities are dependent on weather and conditions.
- **Forensics Institute of Bridgewater** (Entering grades 6-8) – Bridgewater Campus (July 16-20)
As a new employee at the Forensics Institute of Bridgewater (FIB), you expect your intensive training on crime scene investigations to be exciting, but you never thought it would be THIS exciting. While training on the various crime lab biotechnology techniques, a live case is delivered and F.I.B. needs YOU to help determine what happened!
Have you ever watched Crime Scene Investigators and wondered what really happens to the evidence at a crime scene and how that evidence is used to solve the crime? Join us in a week-long adventure into the life of a crime scene analyst! Working with Senior Scientists, you will learn how to collect and analyze fingerprints from a simulated crime scene, perform blood type analysis and get closer to solving the mystery using DNA fingerprinting. At the end of the week, you will present your findings as an expert crime scene technician to our "jury" so they can determine if your lab analysis and scientific evidence is sufficient for the case to go to trial.
- **Whale of a Mystery** (Entering grades 6-8)-Bridgewater Campus (July 23-27)
Imagine that you have just been hired as a Junior Scientist for the Bridgewater Animal Forensics Institute (BAFL). Only a day into your training, an important case arrives. It is up to YOU to help determine if the tissue samples sent from a field agent are those of illegally hunted, endangered whale species!
During this exciting hands-on class, participants will use investigative laboratory techniques to solve a mystery related to the hunting of endangered Cetacean species. Students will work in teams to determine if a sample of "whale meat" is from an endangered species that has been sold illegally in a foreign fish market. Participants will learn about the natural history of these amazing creatures while they conduct laboratory research using state of the art technology and techniques, including protein extraction, quantification and gel electrophoresis. The results of these studies will be used to develop a presentation, which will be showcased at a public session for our "congress."
- **Biotech, Health and the Environment** (Entering grades 9-12) – Bridgewater Campus (July 9-13)
In this intensive, week-long class, students will explore how biotechnology impacts our lives across a wide range of disciplines related to health and the environment. Students will learn about and conduct experiments routinely used in food and water safety labs to identify bacterial contamination, design and implement assays to identify genetically modified foods, conduct experiments used in hospital laboratories to test for viral disease and quantify the viral load of a patient, and perform experiments to detect and compare unique proteins in fish (Proteomics). During these exercises students will gain not only theory, but have the opportunity to carry out such advanced molecular techniques as Polymerase Chain Reaction (PCR), Gel Electrophoresis, Enzyme Linked

Immunosorbent Assays (ELISA), spectrophotometry, computer database searches (BLAST) and create computer-generated phylogenetic trees. This program is perfect for anyone interested in biology, medicine and/or biotechnology and will set you apart from your peers when it is time to apply for college. Biotech, Health and the Environment was previously called Biotech II. If a student has already attended Biotech II he/she may not attend Biotech, Health and the Environment.

- ***Deadliest Catch: The Causes, Diagnosis and Treatment of Infectious Diseases*** (Entering Grades 9–12) – Bridgewater Campus (July 16-20)
We all can relate to the aches, pains, and fever resulting from infections, but what really happens when we “catch a bug?” In this weeklong class, developed in collaboration with Tufts University School of Medicine, students will explore the causes, transmission, diagnosis, and treatment of human infectious diseases. Students will examine infectious disease pathogens, their life cycles, how they infect and harm humans, and how our immune system responds. Investigating the treatment options for infectious diseases will include understanding the mechanisms that make microbes harmful, and the pathways that vaccines and drugs target. Pathogens discussed in this course will include Influenza, Cholera, HIV/AIDS, Bubonic (Black) Plague, Smallpox and Zika. The class will consist of a combination of interactive lecture, hands-on lab activities including culturing bacteria and conducting antibiotic assays, case studies, and more. This program is perfect for anyone interested in biomedical science or epidemiology and will be sure to set you apart when it is time to apply for college.
- ***The Graveyard of the Atlantic: Maritime Archaeology in Massachusetts*** (Entering Grades 9-12)-Bridgewater Campus (July 23-27)
Massachusetts has over 3,500 documented shipwrecks along its coastlines, but there are few programs in the state that study them. Through this class, you will investigate and help on-going research at BSU and will document one real shipwreck in Massachusetts - a 17th century vessel housed in a museum. You will learn and apply research and field documentation techniques used by maritime archaeologists, explore how science and technology make maritime archaeology possible, and discuss how history can lead to careers in STEM.

"Please note that students will be working with an extremely old artifact dating possibly to almost 400 years ago. They will be working within the confines of a museum, and will be moving and lifting small frames and ship timbers to document and photograph. They will be kneeling and bending over through the day to acquire data as needed. Students should bring protection for hands and appropriate clothes and footwear for these activities."