

The mission of the MSU Science Festival is to provide a fun and exciting way for students, faculty, staff, and the community to explore science, technology, art, and mathematics (the STEAM acronym) through a variety of hands-on exhibits, interactive displays, and presentations. The festival is a great opportunity for students to learn about the latest in science, technology, art, and mathematics, and to meet with scientists and researchers from around the world.

# MSU SCIENCE FESTIVAL

SCIENCE | TECHNOLOGY | ENGINEERING | ARTS | MATHEMATICS

MICHIGAN STATE UNIVERSITY  
**SCIENCE FESTIVAL**

APRIL 1-30, 2020



[sciencefestival.msu.edu](http://sciencefestival.msu.edu)



# WELCOME TO THE 8TH ANNUAL MSU SCIENCE FESTIVAL

Science • Technology • Engineering • Art • Mathematics

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## SOMETHING FOR EVERYONE

250 ACTIVITIES ON CAMPUS AND STATEWIDE

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Welcome to the Annual MSU Science Festival!

At the 8th annual MSU Science Festival, we are visualizing the invisible, inviting everyone to join us in exploring and learning about the world around us.

More than 350 scientists, researchers, and educational partners are ready to dazzle, delight, inspire and educate visitors about the STEAM disciplines and the key role they play in our everyday lives and how they will shape our future.

We hope to see you at this celebration of Visualizing the Invisible, sparking wonder and imagination.

-MSU Scifest Team

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## PLANNING YOUR VISIT

**ALL ACTIVITIES AND EVENTS ARE FREE!**

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The Science Festival offers a variety of presentations intended for multiple audiences statewide. Age recommendations and location details are available in print and online. Some events may require pre-registration. For the most up to date information on events, parking, where to eat, lost children, or other general questions, visit the Festival website [sciencefestival.msu.edu](http://sciencefestival.msu.edu)



**Multiple locations statewide,  
with over 50 new presentations  
to enjoy.**



## **SIGNATURE EVENTS**

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## **SCHEDULE AT-A-GLANCE**

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## **LANSING STATE JOURNAL EXPO ZONE**

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## **TALKS, DEMONSTRATIONS AND PERFORMANCES**

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## **TAKE A TOUR/ OPEN HOUSE**

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# NIGHTS AT THE MUSEUMS

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# STATEWIDE ASTRONOMY NIGHT

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# SCIENCE CAFES AND PUBS

PAGE 45

.....  
The Science Festival website will have descriptions and the most up to date information. Please visit the website at [sciencefestival.msu.edu](http://sciencefestival.msu.edu)  
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# SIGNATURE EVENTS

## Coding to the Moon: Margaret Hamilton and the Apollo Missions

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**Saturday, April 4**

2:30 - 3:30 PM

and 4:30 - 5:30 PM

Anthony Hall Room 1281

Gripping live production that celebrates the life and work of computer scientist and software engineer, Margaret Hamilton. As a young NASA scientist, she broke new ground as she led the team that built the navigation systems for the Apollo missions to the moon.

The play is a captivating drama of the daring and risk involved in the space missions and how Hamilton's team averted last-minute disasters during the flights of Apollo 8 and Apollo 11. Presented by Wild Swan Theater, Ann Arbor, MI.



## Visualizing the Invisible:

A Talk with Dr. Sian Proctor,  
Analog Astronaut

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**Friday, April 24**

7:00 - 8:00 PM

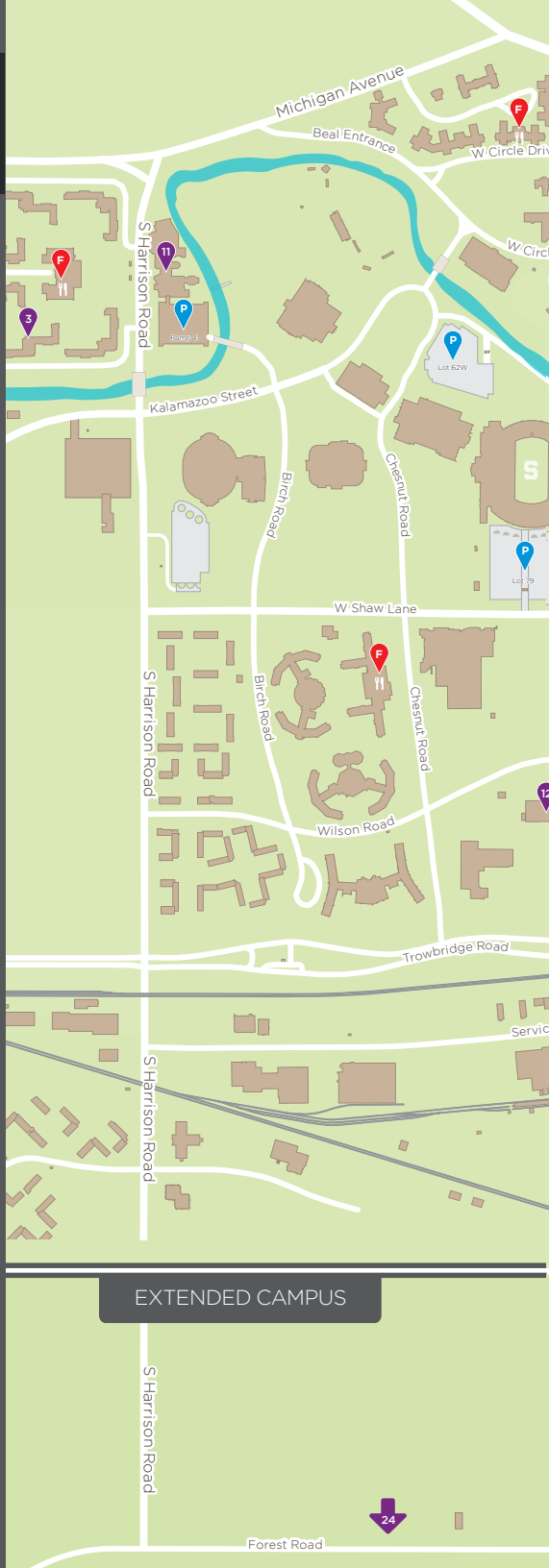
MSU Auditorium

Dr. Sian Proctor will take you on her personal journey as a student, geoscientist, explorer, finalist for the NASA Astronaut Program, and analog astronaut. What was it like to live in 3 analog missions (NASA funded HI-SEAS Mars Simulation, LunAres habitat in Pila, Poland, and Mars Desert Research Station)? What can we learn from these missions to help us on Earth? Learn what inspires her, what we can learn from her adventures and how it can help shape the future.

# CAMPUS MAP

1. Abrams Planetarium
2. Anthony Hall
3. Bailey Greenhouse and Urban Farm
4. Baker Woodlot
5. Biomedical Physical Sciences Building
6. Center for Intergrated Plant Systems
7. Chemistry Building
8. Eustace-Cole Hall Entrance
9. FRIB Auditorium and Lobby
10. Institute Quantitative Health Sciences and Engineering
11. Kellogg Center
12. Landscape Services Building
13. Main MSU Library
14. Michigan 4-H Children's Garden Butterfly House
15. Molecular Plant Sciences Building
16. MSU Auditorium
17. MSU Broad Art Museum
18. MSU Museum
19. MSU Observatory (Extended Campus)
20. MSU Scene Shop
21. National Superconducting Cyclotron Laboratory
22. Natural Science Building / Bug House
23. Plant Biology Laboratories / Herbarium
24. South Campus Anaerobic Digester Research and Education Center (Extended Campus)
25. Surplus Store
26. W.J. Beal Botanical Gardens

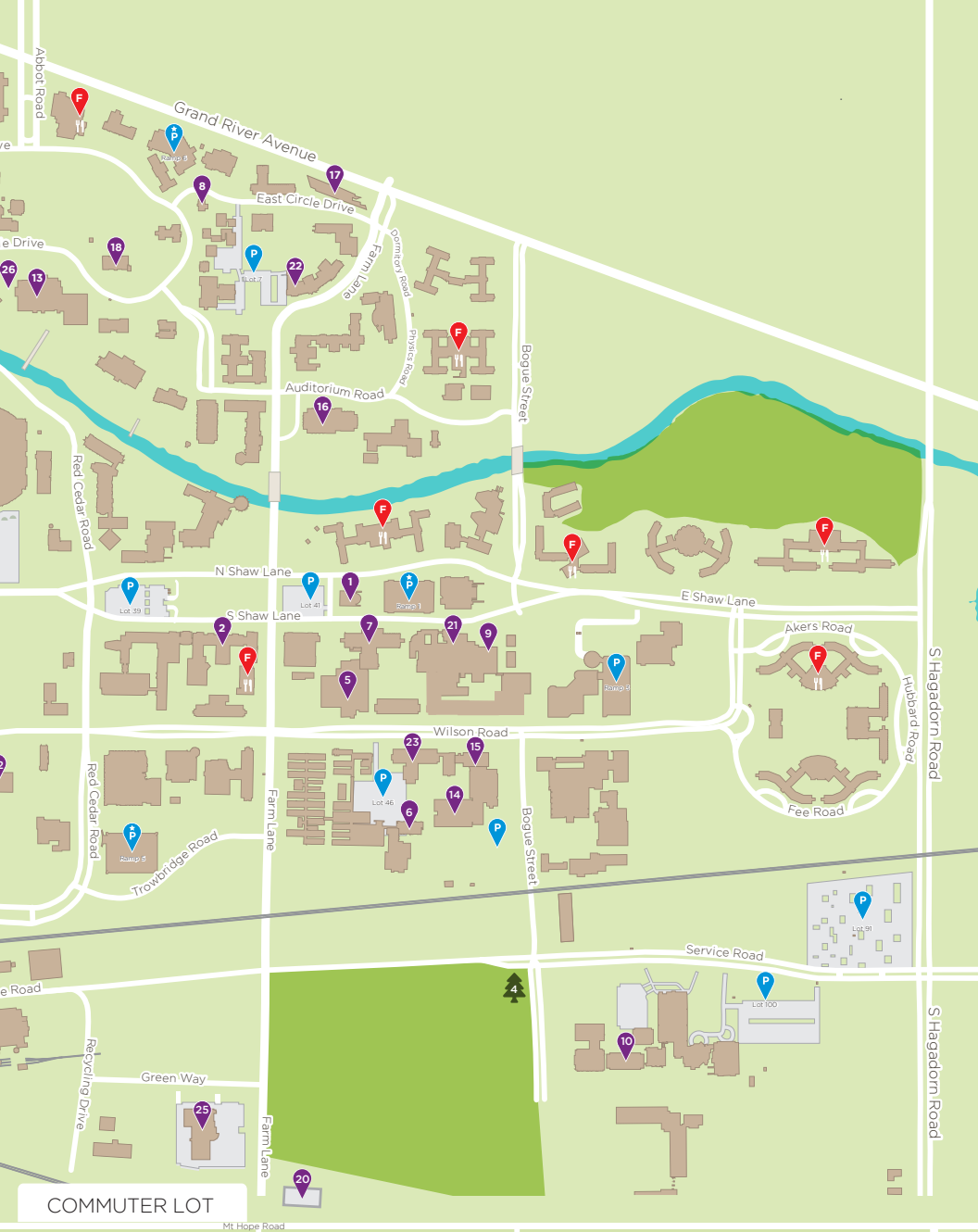
P - Parking  
F - Food / Cafeterias



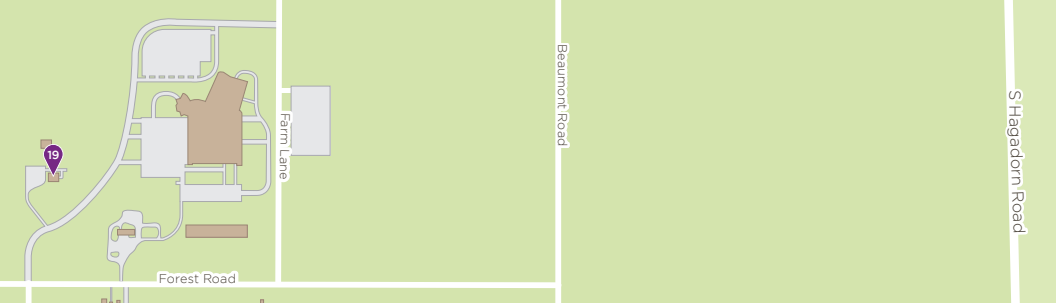
EXTENDED CAMPUS

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COMMUTER LOT



# SCHEDULE AT-A-GLANCE

## KEY

MSU Expo Zones

Talks, Demonstrations & Performances

Take a Tour/ Open House

Nights at the Museums

Statewide Astronomy Night

Science Cafe/Pubs

★ Signature Events

## FRIDAY, APRIL 3

TITLE	TIME	CITY	PAGE
Women in Science Wikipedia-Edit-a-Thon	1:00 PM - 3:00 PM	MSU Campus	34
Campfire Science Night	6:00 PM - 9:00 PM	Lansing	34



## SATURDAY, APRIL 4

TITLE	TIME	CITY	PAGE
Expo Zone	10:00 AM - 4:00 PM	MSU Campus	18
MSU Indoor 4-H Children's Garden Open House	10:00 AM - 4:00 PM	MSU Campus	34
Amazing Astronomy & Fantastic Physics	10:30 AM - 11:30 AM	MSU Campus	27
Budget Like a Boss	11:00 AM - 11:30 AM	MSU Campus	27
Counting the Uncountable: Measuring the Diversity of Earth's Invisible Species	11:00 AM - 12:00 PM	MSU Campus	27
Everything You Know About Mass is Wrong!	11:00 AM - 12:00 PM	MSU Campus	27


Explore the Invisible World of Blood!	11:00 AM - 12:00 PM	MSU Campus	27
Exploring the Invisible Aspects of Urban Trees Using Lasers: What We Learn From Ghost Pictures	11:00 AM - 12:00 PM	MSU Campus	27
How Could Computational Modeling Help You Plan a Hiking Path on Mt. Rainier?	11:00 AM - 11:30 AM	MSU Campus	28
How Do We Keep the Fish We Eat Healthy?	11:00 AM - 11:30 AM	MSU Campus	28
Our Ancestors: The Evolution of Stars	11:00 AM - 12:00 PM	MSU Campus	28
Safe Control of Self-Driving Cars	11:30 AM - 12:00 PM	MSU Campus	28
Budget Like a Boss	12:00 PM - 12:30 PM	MSU Campus	27
Burning Forests to Save Forests	12:00 PM - 12:30 PM	MSU Campus	28
Is It Magic...or Chemistry?	12:00 PM - 1:00 PM	MSU Campus	28
How We See 23&Me	12:30 PM - 1:30 PM	MSU Campus	28
News from the Underground & the Magic of Mycelium	12:30 PM - 1:30 PM	MSU Campus	29
Science! The Musical	12:30 PM - 1:00 PM	MSU Campus	29
The Invisible Color Force That Binds Us (and Makes Us Heavy!)	12:30 PM - 1:00 PM	MSU Campus	29
Budget Like a Boss	1:00 PM - 1:30 PM	MSU Campus	27
Exciting Electromagnetism	1:00 PM - 2:00 PM	MSU Campus	29
So You Want To Be a Game Designer?	1:00 PM - 2:00 PM	MSU Campus	29
When Robots Deliver Pizza...	1:00 PM - 1:30 PM	MSU Campus	29
MSU Science Theatre Presents: The Newtonian Physics Show!	1:30 PM - 2:30 PM	MSU Campus	30
Night Sky in Lansing	1:30 PM - 2:00 PM	MSU Campus	29
The Spartan Dischords Present: The Magnetism of Music	1:30 PM - 2:00 PM	MSU Campus	30
Michigan State Solar Racing Team: Electric Vehicles on the Road	2:00 PM - 2:30 PM	MSU Campus	30
NanoTB Test	2:00 PM - 2:30 PM	MSU Campus	30
New Ways of Delivering Education: Facilities Planning on Campus	2:00 PM - 2:30 PM	MSU Campus	30
Night Sky in Lansing	2:00 PM - 2:30 PM	MSU Campus	29
Toward the Circular Economy: The Use and ReUse of Plastic Materials	2:00 PM - 2:30 PM	MSU Campus	30
Night Sky in Lansing	2:30 PM - 3:00 PM	MSU Campus	29

	Saving the Bees, One Garden at a Time	2:30 PM - 3:00 PM	MSU Campus	30
	Why the Amazon is More 'The Heart' Than 'The Lungs' of the Earth and How We Can Preserve Its Life-Sustaining Function	2:30 PM - 3:00 PM	MSU Campus	31
	Coding to the Moon: Margaret Hamilton and the Apollo Missions	2:30 PM - 3:30 PM	MSU Campus	5
	Michigan State Solar Racing Team: Electric Vehicles on the Road	3:00 PM - 3:30 PM	MSU Campus	30
	Science That You Can't Do at Home!	3:00 PM - 4:00 PM	MSU Campus	31
	Seeing Stars: How Birds Use the Night Sky to Navigate	3:00 PM - 4:00 PM	MSU Campus	31
	Seeing Thoughts and Feelings	3:00 PM - 4:00 PM	MSU Campus	31
	Superheroes Curing the Big Bad Sickness	3:00 PM - 4:00 PM	MSU Campus	31
	Your Brain on Sleep	3:00 PM - 3:30 PM	MSU Campus	31
	Saving the Bees, One Garden at a Time	3:30 PM - 4:00 PM	MSU Campus	30
	Why the Amazon is More 'The Heart' Than 'The Lungs' of the Earth and How We Can Preserve Its Life-Sustaining Function	3:30 PM - 4:00 PM	MSU Campus	31
	Wooden Skyscrapers?: MSU's 'Mass Timber' Building	3:30 PM - 4:00 PM	MSU Campus	31
	Coding to the Moon: Margaret Hamilton and the Apollo Missions	4:30 PM - 5:30 PM	MSU Campus	5
	Beat the Scientist	7:00 PM - 9:00 PM	Lansing	45




## SUNDAY, APRIL 5

	TITLE	TIME	CITY	PAGE
	MSU Indoor 4-H Children's Garden Open House	10:00 AM - 4:00 PM	MSU Campus	34
	Sustaining the Vision Open House at the Kellogg Biological Station	11:00 AM - 4:00 PM	Augusta	34




## WEDNESDAY, APRIL 8

	TITLE	TIME	CITY	PAGE
	Astronomy on Tap	7:30 PM - 9:30 PM	Lansing	45








## THURSDAY, APRIL 9

	TITLE	TIME	CITY	PAGE
	Almost Anything Made From Petroleum Can Be Made With Wood	4:00 PM - 5:00 PM	MSU Campus	32
	Propagation Lab	7:00 PM - 8:00 PM	Lansing	45
	Grand Rapids Science on Tap	8:00 PM - 10:00 PM	Grand Rapids	45


## FRIDAY, APRIL 10

	TITLE	TIME	CITY	PAGE
	Tour of the Center for Advanced Microscopy	11:00 AM - 11:50 AM	MSU Campus	34
	Skeletons, Jaws, and Jars: A Tour of the MSU Museum Vertebrate Collections	2:00 PM - 2:30 PM	MSU Campus	35
	Skeletons, Jaws, and Jars: A Tour of the MSU Museum Vertebrate Collections	2:45 PM - 3:15 PM	MSU Campus	35

## SATURDAY, APRIL 11

	TITLE	TIME	CITY	PAGE
	MSU Observatory Turns 50! (Workshop)	9:00 AM - 5:00 PM	MSU Campus	35
	MSU Indoor 4-H Children's Garden Open House	10:00 AM - 4:00 PM	MSU Campus	34
	BeLEAF It or Not! Enjoy a Fun-Filled Video Series on Forests and Forestry	11:00 AM - 11:30 AM	MSU Campus	32
	Fins to Limbs: How Our Ancestors Left the Water and Came Onto Land	12:00 PM - 1:00 PM	MSU Campus	32
	Super Bugs-From the Public Health Lab!	3:00 PM - 3:30 PM	MSU Campus	32
	Plant Pharmacy: Why Plant Defenses are Valuable to US	4:00 PM - 4:30 PM	MSU Campus	32
	MSU Observatory Turns 50! (Stargazing!)	9:00 PM -11:00 PM	MSU Campus	35


## MONDAY, APRIL 13

	TITLE	TIME	CITY	PAGE
	Our Ancestors: The Evolution of Stars	7:00 PM - 8:00 PM	Lansing	45
	Night Sky in Lansing	8:00 PM - 8:30 PM	Lansing	45
	Building Better Space Teams: Tracking Team Interactions, Conflict, and Attitudes in Space Mission Analogs	8:30 PM - 9:00 PM	Lansing	46





## TUESDAY, APRIL 14

	TITLE	TIME	CITY	PAGE
	MSU Broad Art Museum Night at the Museums	5:00 PM - 8:00 PM	MSU Campus	40
	MSU Museum Night at the Museums	5:00 PM - 8:00 PM	MSU Campus	40
	The Roc at MSU: What Can We Learn from a Skeleton?	5:00 PM - 8:00 PM	MSU Campus	40










## WEDNESDAY, APRIL 15

	TITLE	TIME	CITY	PAGE
	News from the Underground & the Magic Mycelium	7:00 PM - 8:00 PM	Lansing	46

## THURSDAY, APRIL 16

	TITLE	TIME	CITY	PAGE
	Impression 5 Night at the Museum	5:00 PM - 7:30 PM	Lansing	40
	WILX-TV Channel 10 Live Weather Forecast from Impression 5 Science Center	5:00 PM - 5:30 PM	Lansing	40
	Earth is Blue: A Closer Look at National Marine Sanctuaries in a Night at the Thunder Bay National Marine Sanctuary	7:00 PM - 9:00 PM	Alpena	41
	Big Astronomy: How Observatories in Chile Keep Working	7:30 PM - 8:30 PM	MSU Campus	32

## FRIDAY, APRIL 17

	TITLE	TIME	CITY	PAGE
	Potter Park Zoo: An Evening of Awesome, Interactive Experiences at a Living Museum	5:00 PM - 8:00 PM	Lansing	41
	Statewide Astronomy Night at Kingman Museum	5:00 PM - 8:00 PM	Battle Creek	43
	Looking into the Sky with New Eyes at Kalamazoo Valley Museum	5:00 PM - 5:30 PM	Kalamazoo	43
	Astrophotography for Beginners and Advanced at Henry Ford College	6:30 PM - 11:00 PM	Dearborn	43
	Big Astronomy: People, Places, Discovery at Abrams Planetarium	7:00 PM - 9:00 PM	MSU Campus	43
	Ella Sharp Museum's Hurst Planetarium: Our Shared Night Sky	7:00 PM - 10:00 PM	Jackson	43
	Statewide Astronomy Night at Bay City State Park	7:00 PM - 10:00 PM	Bay City	44
	Statewide Astronomy Night at the MSU Observatory	8:00 PM - 10:00 PM	Lansing	44
	Statewide Astronomy Night at Veen Observatory	8:30 PM - 11:30 PM	Lowell	44



## SATURDAY, APRIL 18

	TITLE	TIME	CITY	PAGE
■	Ecology and More Extravaganza Tour	9:00 AM - 1:00 PM	Laingsburg	35
■	MSU Indoor 4-H Children's Garden Open House	10:00 AM - 4:00 PM	MSU Campus	34
■	Pioneering Biomedical Research with IQ (Institute for Quantitative Health Science and Engineering)	10:00 AM - 1:00 PM	MSU Campus	35
■	Tour and Explore the World of Insects at the MSU Bug House	10:00 AM - 5:00 PM	MSU Campus	35
■	Tour the Lansing Makerspace	10:00 AM - 6:00 PM	Lansing	35
■	Science in Spaaaaace	11:00 AM - 11:30 AM	MSU Campus	33
■	Visualizing the Invisible: Architecture on East Campus	11:00 AM - 12:15 PM	MSU Campus	36
■	How Falcons Help Farmers and Farmers Help Falcons	12:00 PM - 12:30 PM	MSU Campus	33
■	Neuroscience Fair	12:00 PM - 4:00 PM	MSU Campus	36
■	We Have Heart!	12:00 PM - 4:00 PM	MSU Campus	36
■	Poisonous Plants in Your Yard	12:30 PM - 1:15 PM	MSU Campus	36
■	A Bountiful Branch of Botany: Tours of the MSU Herbarium and Teaching Conservatory	1:00 PM - 4:00 PM	MSU Campus	36
■	Energy in Motion with Curious Crew	1:00 PM - 2:00 PM	MSU Campus	33
■	Molecules at the Movies	1:00 PM - 1:30 PM	MSU Campus	33
■	MSU Broad Art Museum Never Spoken Again Tour	1:00 PM - 2:00 PM	MSU Campus	36
■	MSU Library Open House Digital Scholarship Lab: Online Privacy, Virtual Reality, and Immersive Visualization	1:00 PM - 4:00 PM	MSU Campus	37
■	MSU Library Open House Makerspace: What's a Makerspace?	1:00 PM - 4:00 PM	MSU Campus	37
■	MSU Library Open House Map Library: Compass and Map Navigation	1:00 PM - 4:00 PM	MSU Campus	37
■	MSU Library Open House: Botanical Gems - Rare Books with Preserved Plant Specimens	1:00 PM - 4:00 PM	MSU Campus	37


MSU Library Open House: Make Your Own Book!	1:00 PM - 4:00 PM	MSU Campus	37
MSU Library Open House: Print Your Own Science Festival Bookmark!	1:00 PM - 4:00 PM	MSU Campus	37
MSU Library Open House: Rare Books of Animals and People Working Together	1:00 PM - 4:00 PM	MSU Campus	38
MSU Library Open House: Seed Library	1:00 PM - 4:00 PM	MSU Campus	38
MSU Theater Scene Shop Tour	1:00 PM - 1:30 PM	MSU Campus	38
Tour Bailey Greenhouse and Urban Farm: A Student Run Learning Center	1:00 PM - 1:30 PM	MSU Campus	38
Vernal Pools in MSU's Baker	1:00 PM - 2:00 PM	MSU Campus	38
Tour Arboriculture at MSU	1:30 PM - 2:00 PM	MSU Campus	38
Tour Bailey Greenhouse and Urban Farm: A Student Run Learning Center	1:30 PM - 2:00 PM	MSU Campus	38
MSU Recycling: Behind the Scenes Tour	2:00 PM - 2:30 PM	MSU Campus	38
Poisonous Plants in Your Yard	2:00 PM - 2:45 PM	MSU Campus	36
Tour Bailey Greenhouse and Urban Farm: A Student Run Learning Center	2:00 PM - 2:30 PM	MSU Campus	38
Tour the National Superconducting Cyclotron Laboratory	2:00 PM - 2:50 PM	MSU Campus	39
MSU Anaerobic Digester Tour	2:15 PM - 3:00 PM	MSU Campus	39
Nuclear Science From a Whole New Angle: Virtual Tour of the NSCL and FRIB	2:15 PM - 3:00 PM	MSU Campus	39
Tour Arboriculture at MSU	2:30 PM - 3:00 PM	MSU Campus	38
MSU Recycling: Behind the Scenes Tour	2:45 PM - 3:15 PM	MSU Campus	38
Energy In Motion with Curious Crew	3:00 PM - 4:00 PM	MSU Campus	33
MSU Broad Art Museum: Never Spoken Again Tour	3:00 PM - 4:00 PM	MSU Campus	36
MSU Theater Scene Shop Tour	3:00 PM - 3:30 PM	MSU Campus	38
MSU Anaerobic Digester Tour	3:15 PM - 4:00 PM	MSU Campus	39
Wild Plant Foods and the Salad Bar of Spring	3:15 PM - 4:00 PM	MSU Campus	39
Knockout Anatomy	5:00 PM - 6:00 PM	MSU Campus	33
Public Observing at MSU Observatory	9:00 PM - 11:00 PM	MSU Campus	39




## SUNDAY, APRIL 19

	TITLE	TIME	CITY	PAGE
	MSU Indoor 4-H Children's Butterfly Garden Open House	10:00 AM - 4:00 PM	MSU Campus	34
	Explore Harris Nature Center	12:00 PM - 4:00 PM	Okemos	39



## TUESDAY, APRIL 21

	TITLE	TIME	CITY	PAGE
	Signs of Life: New Directions in Biodiversity Collections Research. An Interdisciplinary Symposium	3:00 PM - 7:00 PM	MSU Campus	33


## WEDNESDAY, APRIL 22

	TITLE	TIME	CITY	PAGE
	Celebrate Earth Day on Science on a Sphere at the MSU Museum!	9:00 AM - 5:00 PM	MSU Campus	39



## THURSDAY, APRIL 23




	TITLE	TIME	CITY	PAGE
	Secret Lives of Michigan Objects at Michigan History Center	5:00 PM - 8:00 PM	Lansing	41
	The Building Blocks of Matter: Atoms or LEGOs?	6:00 PM - 7:00 PM	Lansing	41

## FRIDAY, APRIL 24


	TITLE	TIME	CITY	PAGE
	Visualizing the Invisible: A Talk with Dr. Sian Proctor, Analog Astronaut	7:00 PM - 8:00 PM	MSU Campus	6

## SATURDAY, APRIL 25


	TITLE	TIME	CITY	PAGE
	The Great Global Cleanup--Detroit River at Belle Isle State Park	8:00 AM - 12:00 PM	Detroit	41
	Fly into Science: Discover the Unseen Mysteries of Flight at the Yankee Air Museum	10:00 AM - 4:00 PM	Belleville	41

	MSU Indoor 4-H Children's Garden Open House	10:00 AM - 4:00 PM	MSU Campus	34
	How are Sea Lampreys Controlled?	1:00 PM - 6:00 PM	Detroit	42
	Science—Making it Happen at the Charles H. Wright Museum of African American History	1:00 PM - 6:00 PM	Detroit	42


## SUNDAY, APRIL 26

	TITLE	TIME	CITY	PAGE
	MSU Indoor 4-H Children's Garden Open House	10:00 AM - 4:00 PM	MSU Campus	34


## MONDAY, APRIL 27

	TITLE	TIME	CITY	PAGE
	Communication (Science) On Tap	7:00 PM - 8:30 PM	Lansing	46

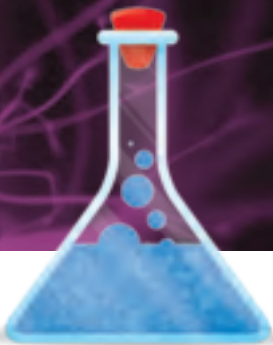
## TUESDAY, APRIL 28

	TITLE	TIME	CITY	PAGE
	Biology on Tap!	7:30 PM - 9:00 PM	Lansing	46

## THURSDAY, APRIL 30

	TITLE	TIME	CITY	PAGE
	An Evening at the Air Zoo	6:00 PM - 8:00 PM	Portage	42

# LANSING STATE JOURNAL EXPO ZONE



## Lansing State Journal

**Saturday, April 4**

10:00 AM - 4:00 PM

Abrams Planetarium, Biomedical and Physical Sciences Building, Chemistry Building, Facility For Rare Isotope Beams, and Molecular Plant Sciences Building

Experience exciting hands-on activities, demonstrations, talks, and performances.

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### **Everything Falls**

**Abrams Planetarium**

Come learn about gravity with a bunch of experiments.

### **Physics and Astronomy Activities with WaMPS**

**Abrams Planetarium**

Join the MSU Women and Minorities in Physical Sciences group for some hands-on physics and astronomy activities.

### **The Invisible - Don't Just See It, Play With It!**

**Abrams Planetarium**

Visualize and play with the invisible force re-imagined by Einstein. Create gravity waves and eat the results.

### **Art and Science Intersections**

**Biomedical and Physical Sciences**

Take a moment at REACH Studio Art Center's table to learn about primary and secondary colors and chemical reactions.

## **Astronaut Tools**

### **Biomedical and Physical Sciences**

Is your dexterity as good as an astronaut's? Come try on 'astronaut' gloves at this expo booth.

## **Birds, Poo, and You**

### **Biomedical and Physical Sciences**

Learn about bird banding, avian health, and our research into bird diet. Get hands-on with banding demos and educational games about bird migration.

## **Check Out STEM @ CADL**

### **Biomedical and Physical Sciences**

Capital Area District Libraries will be showcasing a variety of different STEM toys and activities that can be checked out from our libraries.

## **Computational Science: Robots, Supercomputers, and Virtual Reality, Oh My!**

### **Biomedical and Physical Sciences**

Experience virtual reality, program a robot, interact with a mini-supercomputer, and learn how scientists use computers to understand the world.

## **Evolution in Action**

### **Biomedical and Physical Sciences**

Learn about evolutionary science by exploring the atmosphere of Earth, examining primate skulls and playing a game to see how birds compete for seeds.

## **How Supercomputers Work**

### **Biomedical and Physical Sciences**

What makes a supercomputer so fast? Find out through a short video, a comic strip, games, and hands-on exploration of the hardware.

## **Invisible Quantum World**

### **Biomedical and Physical Sciences**

Come see the invisible world of quantum physics and computing, and tour the Laboratory for Hybrid Quantum Systems at MSU.

## **Laser Tweezers: Reach Out and Grab Bacteria!**

### **Biomedical and Physical Sciences**

Use lasers and a microscope to grab and interact with live swimming bacteria in a video game-like experience.

## **Michigan Snakes Alive**

### **Biomedical and Physical Sciences, Room 1425**

About ten species of Michigan-native snakes will be on display with interpretive information.

## **Microscopic Wonders of the Human Body**

**Biomedical and Physical Sciences, Room 1425**

Learn more about the exciting science of laboratory medicine to visualize the cells and microbes of the human body.

## **Molecules and Properties Unseen**

**Biomedical and Physical Sciences**

Visualize the molecular world through your senses to engage with some physical and reactivity based properties of matter.

## **MSU Campus Archaeology Program**

**Biomedical and Physical Sciences**

Come learn about the archaeological finds and discoveries made on Michigan State University's campus.

## **Nursing 101: Health Promotion, Skills, Assessment, and Simulation**

**Biomedical and Physical Sciences**

Explore the science and art of nursing in this fun, interactive, hands-on session with sugar, glo germ, stethoscopes, and simulation manikins.

## **Particle Astrophysics with IceCube and HAWC**

**Biomedical and Physical Sciences**

Explore the universe using high energy particles with the IceCube and HAWC observatories. Includes interactive activities, a gear exhibit and more.

## **See Light and Microscopic Pond Life**

**Biomedical and Physical Sciences**

See invisible indoor rainbows with our make-and-take light benders. Also, discover microscopic life in our exciting pond water exhibit.

## **The Buzz on Bees**

**Biomedical and Physical Sciences**

Learn about the importance and diversity of bees and the ways YOU can protect them.

## **The Magical Invisible Microbial World**

**Biomedical and Physical Sciences**

Learn about the magical invisible microbial world that surrounds us, through hands-on activities.

## **Vermicomposting with IQHub and the MiSTEM Network**

**Biomedical and Physical Sciences**

Come dig a little deeper into the lives of our friend, the worm.

## **Weird Water: A Study of Different Densities**

**Biomedical and Physical Sciences**

Learn about density and make a super cool lava lamp to take home.

## **What's a Watershed?: Rain, Drains, and Surface Water Quality**

**Biomedical and Physical Sciences**

Mimic rainfall and watch how urban runoff can impact the health of a watershed.

## **Why Study Spotted Hyenas?**

**Biomedical and Physical Sciences**

Why do we study spotted hyenas, and why do we like them? Learn what makes the hyena one of the world's most unique and fascinating predators.

## **A Plant is a Community: The Hidden World of Plant Microbiomes**

**Chemistry Building**

Come to see how plants benefit from their microbe communities, awesome colorful microbes, and habitat of fertilizer-making bacteria.

## **Amazing Animal Adaptations**

**Chemistry Building**

Explore skulls, pelts, antlers and more as we learn about the amazing ways animals survive in the wild.

## **Are You the Next Olympic Athlete? Measuring Movement in Health and Disease**

**Chemistry Building**

Learn the science and technology behind measuring human movement and how it is applied in the study of athletes to people with disabilities.

## **Bacterial Migration Under the Microscope**

**Chemistry Building**

Bacteria can smell, talk, move, and organize. Come discover some of their surprisingly sophisticated behaviors.

## **Chemistry of the Human Senses**

**Chemistry Building**

This presentation will discuss the chemistry associated with the human senses of vision, smell, and taste.

## **CIGLR/NOAA GLERL Great Lakes Research: HOMES Is Where the Heart Is**

**Chemistry Building, Room 127**

CIGLR and NOAA GLERL lead exciting Great Lakes research, train the next generation of scientists, and turn research into action.

## Groundwater Adventure

### Chemistry Building

Explore where water is found in the environment, how it moves from one place to the next, and how it is affected by pollution.

## How Do Plants Defend Themselves?

### Chemistry Building

Discover how plants think, move, and fight predators. Check us out to see and feel thorns, purple, hairy leaves, plants that survive fire, and more.

## How Much Water is 'Hidden' in Your Everyday Life?

### Chemistry Building

Come on down and play "The Water Price is Right!" to learn how much unseen water we use!

## Instrument Petting Zoo

### Chemistry Building, Room 110

Trumpets, violins, and flutes, oh my! Explore playing these instruments and more at the fun, family-friendly instrument petting zoo.

## Make Your Own Pulsar

### Chemistry Building

Pulsars are among the most extreme objects in the universe. You'll get to craft your own pulsar to see its lighthouse-like pulses for yourself.

## Native Bee Houses by Bailey Bee Team

### Chemistry Building

The MSU Bailey Bee team will be helping people put together their own native bee houses. You can put these up in your backyard to promote pollinators.

## Science Theatre: Hands on Demonstrations

### Chemistry Building, Room 109

Come join us for exciting, hands on demonstrations about a variety of different topics from space to gyroscopes.

## Social Determinants of Dementia: Does Marriage Matter?

### Chemistry Building

Unmarried people have higher risk of dementia than married people. We present the potential pathways and variations in this finding.

## The Clean Water Process: Treatment and Technology

### Chemistry Building Outside West Entrance

Discover great careers and the tools we use to clean water.

## Where does our Drinking Water Come From? A Window into Its Origins

### Chemistry Building

Do you know that most drinking water comes from beneath us? Come look through a window into the subsurface to understand how groundwater moves!

## Why Do Scientists Use Frogs to Study Development?

### Chemistry Building

How similar is development between animals? Come learn how scientists use this to learn about human brain formation.

## A Crash Course in Accelerators

### Facility For Rare Isotope Beams

You'll need a keen eye and quick reflexes to race a "nucleus" cart down a "linear accelerator" track with electromagnets.

## A Smashing Time with Nuclei

### Facility For Rare Isotope Beams

Get hands-on with a model "nucleus" that you can accelerate and smash to make isotopes that don't exist on Earth, but might be made in stars.

## Dancing, Tangles, and Rational Numbers

### Facility For Rare Isotope Beams

Do a dance with your friends and tangle some ropes. Then, watch as we magically untangle them.

## Exploring Human Ancestors

### Facility For Rare Isotope Beams

Where did we come from? What makes us different from our ancestors? What were early humans like? Explore our origins through fossils.

## Make Rare Isotopes from the Comfort of Your Couch

### Facility For Rare Isotope Beams

Experience a demonstration of the digital game "Isotopolis," which makes you the researcher with the power to smash nuclei and discover new ones.



## Materials for the Body

### Facility For Rare Isotope Beams

“Show and tell” for a number of different body part replacement materials. Learn what properties correlate to the specific body part function.

## Musical Explorations

### Facility For Rare Isotope Beams

How does the science of sound affect musical instruments? Come explore while listening to live performances.

## Open-Source 3D Printing

### Facility For Rare Isotope Beams

Open-source software and hardware for 3D printing are running full speed. Come learn about 3D printers and open source development.

## Polymers in Modern Lives

### Facility For Rare Isotope Beams

Join us as we introduce the emerging applications of polymers and the existing challenges of polymeric materials.

## Reveal the Science of Materials

### Facility For Rare Isotope Beams

Learn the secret of why materials behave the way they do! How can a baby diaper hold so much water? Why did the titanic sink? Can metals have memory?

## What Do You Know About Water and Health?

### Facility For Rare Isotope Beams

Interactive exhibit designed to engage the public and get them thinking about water and health in Michigan and around the world.

## AH NUTS! The Things We Get from Trees

### Molecular Plant Sciences

Come learn about how we use trees everyday--you may be surprised! Take home your own tree seedling and watch it grow.

## All the Light You Can and Cannot See

### Molecular Plant Sciences

An interaction with light, color, and translucent and transparent materials.

## Color Your Cabbage Leaf

### Molecular Plant Sciences

We will model plant physiology by exploring the the interactions between food coloring and lettuce leaves.

## Create Your Own pH Rainbow!

### Molecular Plant Sciences

Be a scientist and explore the chemistry of acids and bases. Come create the colors of the rainbow by testing the pH of everyday chemicals.

## Fish Under the Microscope

### Molecular Plant Sciences

How do fish breathe? How do fish swim? What do baby fish eat? Fish scientists can tell you all this, and more.

## Gigantris!

### Molecular Plant Sciences

Studies have shown that playing Tetris may lead to increased brain efficiency! Test this out with an over-sized version of this classic game.

## Hunt Like a Hawk

### Molecular Plant Sciences

Can you hunt with your feet? Explore how habitat type and insect camouflage influence hunting ability as you hunt like the American kestrel.

## Magic Wands

### Molecular Plant Sciences

Try out all your best spells! If you can shake your wand at your opponent's target first, you win.

## Mega-Operation

### Molecular Plant Sciences

Familiarize yourself with the human body by playing this giant-sized Operation table game.

## Michigan Audubon "Egg"stravaganza

### Molecular Plant Sciences

Join Michigan Audubon in learning about bird eggs and nests. Explore the hands-on egg display and learn about different types of nests.

## Plant and People: Tasty Tidbits for a Better World

### Molecular Plant Sciences

Learn about how plants make our world better by giving us food, medicine, and many other things.

## Rain Cloud Groundwater Simulator

### Molecular Plant Sciences

The Rain Cloud Groundwater Simulator is designed to help a younger or general audience understand the hydrologic cycle.

## Space: It's Out of This World!

### Molecular Plant Sciences

Learn about space. Explore constellations and design your own spacecraft.



# TALKS, DEMONSTRATIONS AND PERFORMANCES



**Saturday, April 4**  
**10:30 AM - 11:30 AM**

Chemistry Building,  
Room 138

## **Amazing Astronomy and Fantastic Physics**

Explore the cosmos through interactive, large-scale, science demonstrations.

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**Saturday, April 4**  
**11:00 AM - 11:30 PM**  
**12:00 PM - 12:30 PM**  
**1:00 PM - 1:30 PM**

Chemistry Building,  
Room 126

## **Budget Like a Boss**

Learn the math behind an effective budget.

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**Saturday, April 4**  
**11:00 AM - 12:00 PM**  
Biomedical and Physical  
Sciences, Room 1410

## **Counting the Uncountable: Measuring the Diversity of Earth's Invisible Species**

Learn about the diversity and abundance of microorganisms on the planet, and techniques scientists use to study organisms they can't actually see.

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**Saturday, April 4**  
**11:00 AM - 12:00 PM**  
Biomedical and Physical  
Sciences, Room 1415

## **Everything You Know About Mass is Wrong**

Come learn about how strange and counter-intuitive our current understanding of mass is.

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**Saturday, April 4**  
**11:00 AM - 12:00 PM**  
Chemistry Building,  
Room 136

## **Explore the Invisible World of Blood**

Journey into your veins and learn what your blood is doing for you. Visualize the invisible components of blood that work hard for you every day.

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**Saturday, April 4**  
**11:00 AM - 12:00 PM**  
Anthony Hall,  
Room 1281

## **Exploring the Invisible Aspects of Urban Trees Using Lasers: What We Learn From Ghost Pictures**

Did you know lasers help us learn about urban trees? Come and see 2 types of lasers being used to help study urban trees.

**Saturday, April 4****11:00 AM - 11:30 AM**Biomedical and Physical  
Sciences, Room 1420**How Could Computational Modeling Help You Plan a Hiking Path on Mt. Rainier?**

Explore computational modeling and every day scenarios with this brief introduction.

**Saturday, April 4th****11:00 AM - 11:30 AM**Molecular Plant Sciences,  
Room 1200**How Do We Keep the Fish We Eat Healthy?**

Learn about aquaculture, the fastest-growing animal food-producing sector in the world. What are researchers doing to help farm healthy, tasty fish?

**Saturday, April 4th****11:00 AM - 12:00 PM**Abrams Planetarium,  
Sky Theater**Our Ancestors: The Evolution of Stars**

Join me during a cosmic trip to learn about the evolution of stars and meet our true ancestors.

**Saturday, April 4****11:30 AM - 12:00 PM**

FRIB, Auditorium

**Safe Control of Self-Driving Cars**

What challenges do engineers face to assure safety of self-driving cars? Come engage to learn how engineers are navigating these challenges.

**Saturday, April 4****12:00 PM - 12:30 PM**Molecular Plant Sciences,  
Room 1200**Burning Forests to Save Forests**

Dress in wildland-fire gear and participate in an activity that explains how professionals safely light forest fires to save fire-dependent species.

**Saturday, April 4****12:00 PM - 1:00 PM**Chemistry Building,  
Room 138**Is It Magic...or Chemistry?**

Good magicians never reveal their secrets, but good scientists always explain the science behind their tricks. Learn the science behind the magic.

**Saturday, April 4****12:30 PM - 1:30 PM**Chemistry Building,  
Room 136**How We See 23&Me**

Talk with MSU geneticists about personal genome sequencing technology like 23&amp;Me. Learn how they work, where they're going, and what it means for us.

**Saturday, April 4**  
**12:30 PM - 1:30 PM**Biomedical and Physical  
Sciences, Room 1415**Saturday, April 4**  
**12:30 PM - 1:00 PM**Anthony Hall,  
Room 1281**Saturday, April 4th**  
**12:30 PM - 1:00 PM**

FRIB, Auditorium

**Saturday, April 4**  
**1:00 PM - 2:00 PM**Biomedical and Physical  
Sciences, Room 1410**Saturday, April 4**  
**1:00 PM - 2:00 PM**Molecular Plant Sciences,  
Room 1200**Saturday, April 4**  
**1:00 PM - 1:30 PM**Biomedical and Physical  
Sciences, Room 1420**Saturday, April 4**  
**1:30 PM - 2:30 PM**Chemistry Building,  
Room 138**Saturday, April 4**  
**1:30 PM - 2:00 PM**  
**2:00 PM - 2:30 PM**  
**2:30 PM - 3:00 PM**Abrams Planetarium,  
Sky Theater**News from the Underground & the Magic of Mycelium**

See the unseen—mycelium and its root purpose here on Earth.

**Science! The Musical**

A mash-up of technology, dance, and you!

**The Invisible Color Force That Binds Us (and Makes Us Heavy)**

Come learn about mysterious color force that creates more than 90% of your weight and holds together the nucleus of every atom. No PhD required.

**Exciting Electromagnetism**

Come and see a large set of exciting physics demonstrations about electricity and magnetism.

**So You Want to Be a Game Designer?**

Attendees will learn about the ins and outs of the video game industry and how to get a job making video games.

**When Robots Deliver Pizza...**

Experience the future city when we rely on autonomous vehicles and systems to manage our daily lives.

**MSU Science Theatre Presents: The Newtonian Physics Show**

Join Science Theatre as they show how to make a beach ball fly, a racquetball shatter, and other fun physics topics in this silly interactive show.

**Night Sky in Lansing**

Check out what is up in the night sky in our digital planetarium.

**Saturday, April 4**  
**1:30 PM - 2:00 PM**

FRIB, Auditorium

## **The Spartan Dischords Present: The Magnetism of Music**

Michigan State's premier all-male acapella group presents a short performance that encompasses today's and yesterday's pop songs--with science jokes!

**Saturday, April 4**  
**2:00 PM - 2:30 PM**  
**3:00 PM - 3:30 PM**

Chemistry Building,  
Room 126

## **Michigan State Solar Racing Team: Electric Vehicles on the Road**

The MSU SRT team designs, builds, and race solar-powered electric vehicles. Learn about their first multi-passenger vehicle.

**Saturday, April 4**  
**2:00 PM - 2:30 PM**

Biomedical and Physical  
Sciences, Room 1420

## **NanoTB Test**

Come learn about the faster and cheaper way to diagnose tuberculosis, the new nanoTB test.

**Saturday, April 4**  
**2:00 PM - 2:30 PM**

Chemistry Building,  
Room 136

## **New Ways of Delivering Education: Facilities Planning on Campus**

Learn about the new way MSU plans and designs its facilities to create new spaces for students and faculty to collaborate and innovate.

**Saturday, April 4**  
**2:00 PM - 2:30 PM**

Biomedical and Physical  
Sciences, Room 1415

## **Towards the Circular Economy: The Use and ReUse of Plastic Materials**

Learn the new and established technologies that improve the sustainability of the plastics.

**Saturday, April 4**  
**2:30 PM - 3:30 PM**  
**4:30 PM - 5:30 PM**

Anthony Hall,  
Room 1281

## ★ **Coding to the Moon: Margaret Hamilton and the Apollo Missions**

This gripping, live play tells the story of the Apollo Space Missions from the perspective of NASA computer scientist, Margaret Hamilton.

**Saturday, April 4**  
**2:30 PM - 3:00 PM**  
**3:30 PM - 4:00 PM**

Biomedical and Physical  
Sciences, Room 1410

## **Saving the Bees, One Garden at a Time**

Learn about the various native bees that live in Michigan and how your own patch of land can be adapted to support bees and other pollinators.

**Saturday, April 4**  
**2:30 PM - 3:00 PM**  
**3:30 PM - 4:00 PM**

Molecular Plant Sciences,  
 Room 1200

## Why the Amazon is More ‘The Heart’ Than ‘The Lungs’ of the Earth and How We Can Preserve Its Life-Sustaining Function

Join us as we explore the wondrous Amazon rain-forest, how to preserve it, and share experiences like climbing into 160 foot tall trees for research!

**Saturday, April 4**  
**3:00 PM - 4:00 PM**

Chemistry Building,  
 Room 138

## Science That You Can’t Do At Home

Watch as Science Theatre presents all of the exciting science demos that you can’t do at home—including a flame tube, bed of nails, and others.

**Saturday, April 4**  
**3:00 PM - 4:00 PM**

Abrams Planetarium,  
 Sky Theater

## Seeing Stars: How Birds Use the Night Sky to Navigate

How do birds know where to go when they migrate? Learn how birds use the stars to navigate throughout their journey.

**Saturday, April 4**  
**3:00 PM - 4:00 PM**

Biomedical and Physical  
 Sciences, Room 1415

## Seeing Thoughts and Feelings

New optical technologies enable us to watch the brain in action.

**Saturday, April 4**  
**3:00 PM - 4:00 PM**

Chemistry Building,  
 Room 136

## Superheroes Curing the Big Bad Sickness

Come hear about the rise of our double superheroes, combining their strengths in both science and medicine to solve some of the biggest sicknesses.

**Saturday, April 4**  
**3:00 PM - 3:30 PM**

Biomedical and Physical  
 Sciences, Room 1420

## Your Brain on Sleep

Learn about sleep and how it can help and hinder your memory.

**Saturday, April 4th**  
**3:30 PM - 4:00 PM**

FRIB, Auditorium

## Wooden Skyscrapers?: MSU’s ‘Mass Timber’ Building

See an ecologist’s view of MSU’s STEM Teaching and Learning Facility and mass timber construction. Learn how carbon/climate are taken into consideration.



**Thursday, April 9**  
**4:00PM - 5:00 PM**  
 Engineering Building,  
 Room 1345

## **Almost Anything Made From Petroleum Can Be Made With Wood**

The future is wood. With passion and precision Donna Cassese elevates Maine's paper industry as the future of innovative and inventive design. Part of the Forest Paths Distinguished Speaker Series.

**Saturday, April 11**  
**11:00 AM - 11:30 AM**  
 MSU Museum, Auditorium

## **BeLEAF It or Not!**

Enjoy a fun-filled video series on forests and forestry. Michigan's forests offer economic, environmental and social benefits. Have fun learning about these forests through the BeLEAF It or Not video series.

**Saturday, April 11**  
**12:00 PM - 1:00 PM**  
 MSU Museum, Auditorium

## **Fins to Limbs: How Our Ancestors Left the Water and Came Onto Land**

Explore fossils and learn how our fish ancestors transformed their fins into limbs and conquered the land.

**Saturday, April 11**  
**3:00 PM - 3:30 PM**  
 MSU Museum, Auditorium

## **Super Bugs-From the Public Health Lab!**

Hear about the microscopic menace to society called Super Bugs! Learn about antibiotic resistant bacteria and the heroic efforts to contain them.

**Saturday, April 11**  
**4:00 PM - 4:30 PM**  
 MSU Museum, Auditorium

## **Plant Pharmacy: Why Plant Defenses are Valuable to Us**

Plants make chemical defenses to deal with harsh conditions. These chemicals are not made with humans in mind; however we use them as medicines.

**Thursday, April 16**  
**7:30 PM - 8:30 PM**  
 Abrams Planetarium,  
 Sky Theater

## **Big Astronomy: How the Observatories in Chile Keep Working**

Join the director of the Abrams Planetarium for a virtual tour of the observatories in Chile and meet some of the people that make it all happen.

**Saturday, April 18**  
**11:00 AM - 11:30 AM**  
 Abrams Planetarium,  
 Sky Theater

**Saturday, April 18**  
**12:00 PM - 12:30 PM**  
 Abrams Planetarium,  
 Sky Theater

**Saturday, April 18**  
**1:00 PM - 2:00 PM**  
**3:00 PM - 4:00 PM**  
 Biomedical and Physical  
 Sciences, Room 1415

**Saturday, April 18**  
**1:00 PM - 1:30 PM**  
 Abrams Planetarium,  
 Sky Theater

**Saturday, April 18**  
**5:00 PM - 6:00 PM**  
 Kellogg Center,  
 Heritage Room

**Tuesday, April 21**  
**3:00 PM - 7:00 PM**  
 MSU Museum, Lobby

**Friday, April 24**  
**7:00 PM - 8:00 PM**  
 Auditorium,  
 Concert Auditorium

## Science In Spaaaaace

Come learn about the different space stations throughout history and the 200+ experiments happening in space right now.

## How Falcons Help Farmers and Farmers Help Falcons

Fruit farmers can attract North America's smallest falcons--kestrels--to Michigan with nest boxes. Learn how kestrels and farmers help each other.

## Energy In Motion with Curious Crew

Kinetic energy is energy in motion. Join WKAR's Curious Crew in investigating the science behind kinetic movement by making spool racers.

## Molecules at the Movies

Come see small molecules on the big screen. Learn about proteins, DNA, membranes, and more, in movies made for the dome screen at Abrams Planetarium.

## Knockout Anatomy

Learn the anatomy behind various martial arts maneuvers and practice the techniques yourself. Leave with a better appreciation of our vulnerability.

## Signs of Life: New Directions in Biodiversity Collections Research. An Interdisciplinary Symposium.

Learn how natural science collections, supplemented by citizen science, are contributing to important scientific research and teaching at MSU.

## ★ Visualizing the Invisible: A Talk with Dr. Sian Proctor, Analog Astronaut

Dr. Sian Proctor will take you on her personal journey as a geoscientist, explorer, finalist for the NASA Astronaut Program, and analog astronaut.



# TAKE A TOUR/ OPEN HOUSE

Discover something new by visiting an open house or take a behind-the-scenes tour.

**Tour Day on MSU's Campus is Saturday, April 18.**

**Friday, April 3  
1:00 PM - 3:00 PM**

Main Library, Beaumont  
Instruction Room, 2nd Floor,  
West Wing

**Friday, April 3  
6:00 PM - 9:00 PM**

Woldumar Nature Center  
5739 Old Lansing Road  
Lansing, MI 48917

**Saturdays, April 4, 11, 18, 25  
Sundays, April 5, 19, 26  
10:00 AM - 4:00 PM**

Horticulture Gardens Indoor  
4-H Children's Garden,  
Butterfly House

**Sunday, April 5  
11:00 AM - 4:00 PM**

W.K. Kellogg Biological  
Station  
12685 East C Avenue  
Augusta, MI 49012

**Friday, April 10  
11:00 AM - 11:50 AM**

Center for Integrated Plant  
Systems Building, Room B2A

## Women in Science Wikipedia-Edit-a-Thon

Join the MSU Libraries to learn how to edit and contribute to Wikipedia. We will create and edit articles to improve coverage of women in science.

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## Campfire Science Night

Gather around the campfire for a fun evening of chemistry demonstrations, flashlight hikes, and exciting hands-on activities.

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## MSU Indoor 4-H Children's Garden Open House

Watch and marvel as butterflies flutter and fly about the Indoor 4-H Children's Garden.

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## Sustaining the Vision Open House at the Kellogg Biological Station

Explore the grounds of the Kellogg Bird Sanctuary—for free—in honor of our benefactor W.K. Kellogg's birthday.

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## Tour of the Center for Advanced Microscopy

A view of the microscopic world using the newest and most advanced microscopes in the world.

**Friday, April 10**  
**2:00 PM - 2:30 PM**  
**2:45 PM - 3:15 PM**

MSU Museum, Collections  
 Connections

## Skeletons, Jaws, and Jars: A Tour of the MSU Museum Vertebrate Collections

*Pre-registration required.*

Take a behind-the-scenes tour of our collections, where 117,000 specimens of mammals, birds, reptiles, amphibians, fishes, and fossils are housed.

**Saturday, April 11**  
**9:00 AM - 5:00 PM**

Biomedical and Physical  
 Sciences Building, Room 1415

## MSU Observatory Turns 50 (Workshop)

A workshop celebrating observational astronomy in Michigan. Drop by to learn about the work local astronomers are doing.

**Saturday, April 11**  
**9:00 PM - 11:00 PM**

MSU Observatory, Atrium

## MSU Observatory Turns 50 (Stargazing)

Come celebrate MSU Observatory's 50th Anniversary with night-sky viewing through our telescopes. Weather dependent—skies must be clear.

**Saturday, April 18**  
**9:00 AM - 1:00 PM**

Corey Marsh Ecological  
 Research Center  
 9422 Herbison Road  
 Laingsburg, MI 48848

## Ecology and More Extravaganza Tour

Come get outdoors for a self-guided tour of the Corey Marsh Ecological Research Center.

**Saturday, April 18**  
**10:00 AM - 1:00 PM**

Institute for Quantitative  
 Health Science and  
 Engineering, Lobby

## Pioneering Biomedical Research with IQ (Tour the Institute for Quantitative Health Science and Engineering)

Hands-on activities, demonstrations and tours of lab spaces usually closed to the public.

**Saturday, April 18**  
**10:00 AM - 5:00 PM**

Natural Sciences Building,  
 Room 147

## Tour and Explore the World of Insects at the MSU Bug House

At the MSU Bug House you can see our displays of insects from around the world, and see, touch and hold our live insects, scorpions, and tarantulas.

**Saturday, April 18**  
**10:00 AM - 6:00 PM**

Lansing Makers Network  
 2400 W. St Joseph Highway  
 Lansing, MI 48915

## Tour the Makerspace

Come tour the Lansing Makers Network, a site devoted to creative collaboration that combines technology, art, and community.

**Saturday, April 18****11:00 AM - 12:15 PM**

Eustace-Cole Hall, Entrance

## Visualizing the Invisible: Architecture on East Campus

Meander with AIA architects from Eustace-Cole to the Broad and visualize the invisible: history, structure, phenomenology, imagination, technology.

**Saturday, April 18****12:00 PM - 4:00 PM**

Biomedical and Physical Sciences, Atrium

## Neuroscience Fair

Learn about the nervous system by engaging in hands-on activities, including touching human brains, performing a cow eye dissection, undergoing “mind control,” playing games, learning about research opportunities on campus, finding out how to protect your brain, making neuroscience-themed crafts, and more.

**Saturday, April 18****12:00 PM - 4:00 PM**

Biomedical and Physical Sciences, Atrium

## We Have Heart!

Explore the anatomy and physiology of the heart with REAL organs and have your EKG measured.

**Saturday, April 18****12:30 PM - 1:15 PM****2:00 PM - 2:45 PM**

Beal Botanical Garden, Main Library Entrance

## Poisonous Plants in Your Yard

Explore this introduction to our common toxic plants for people and our pets.

**Saturday, April 18****1:00 PM - 4:00 PM**

Plant Biology Laboratories, Room 151

## A Bountiful Branch of Botany: Tours of the MSU Herbarium and Teaching Conservatory

Enjoy rare tours of the MSU Herbarium and Plant Biology Teaching Conservatory, showcasing plants from around the world.

**Saturday, April 18****1:00 PM - 2:00 PM****3:00 PM - 4:00 PM**

Broad Art Museum, Lobby

## MSU Broad Art Museum: Never Spoken Again Tour

Take part in a free drop-in tour at the MSU Broad Art Museum.

**Saturday, April 18****1:00 PM - 4:00 PM**Main Library, Digital  
Scholarship Lab, 2nd Floor,  
West Wing**Saturday, April 18****1:00 PM - 4:00 PM**Main Library, MakeCentral,  
2nd Floor, West Wing**Saturday, April 18****1:00 PM - 4:00 PM**Main Library, Map Library,  
2nd Floor, East Wing**Saturday, April 18****1:00 PM - 4:00 PM**Main Library, Special  
Collections Classroom,  
Lobby**Saturday, April 18****1:00 PM - 4:00 PM**Main Library, 2nd Floor  
East Wing**Saturday, April 18****1:00 PM - 4:00 PM**Main Library, Special  
Collections Entrance Area,  
Lobby

## **MSU Library Open House Digital Scholarship Lab: Online Privacy, Virtual Reality, and Immersive Visualization**

Learn how to protect your privacy online, and immerse yourself in a VR headset, or group up in our 360-degree visualization room.

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## **MSU Library Open House Makerspace: What's a Makerspace?**

Explore all kinds of makerspace technologies, including 3D printing, Raspberry Pi project demonstrations, circuit-making, laser cuts, and more.

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## **MSU Library Open House Map Library: Compass and Map Navigation**

Learn the difference between magnetic vs. true north, how to read map symbols, and how to take a compass bearing while exploring the MSU Map Library.

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## **MSU Library Open House: Botanical Gems**

Rare books containing preserved plant specimens are extremely fragile and light-sensitive, so they rarely come out of the vault. Today you can see them in person.

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## **MSU Library Open House: Make Your Own Book**

Make a book with a single sheet of paper, like artists do. Even the youngest will enjoy this creative activity.

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## **MSU Library Open House: Print Your Own Science Festival Bookmark**

Experience the history of printing technology. Make your own bookmark on a 1901 Ostrander Seymour iron printing press.

**Saturday, April 18**  
**1:00 PM - 4:00 PM**  
 Main Library, Special  
 Collections Gallery

## MSU Library Open House: Rare Books of Animals and People Working Together

Rare books on falconry, equestrian history, working dogs, livestock breeding, and much more

**Saturday, April 18**  
**1:00 PM - 4:00 PM**  
 Main Library, MakerSpace,  
 2nd Floor, West Wing

## MSU Library Open House: Seed Library

Come and see MSU's new seed library and learn about gardening with heirloom plants. Take some soil and seed starts to grow at home.

**Saturday, April 18**  
**1:00 PM - 1:30 PM**  
**3:00 PM - 3:30 PM**  
 Scene Shop, Entrance

## MSU Theater Scene Shop Tour

Enjoy a brief tour of the theater scene shop and talk on how theater shows get built.

**Saturday, April 18th**  
**1:00 PM - 1:30 PM**  
**1:30 PM - 2:00 PM**  
**2:00 PM - 2:30 PM**  
 Bailey Hall, GREENhouse

## Tour Bailey Greenhouse and Urban Farm: A Student Run Learning Center

Tour the small student-run organic farm that resides within Brody Neighborhood. Among many other things, we vermicompost, grow hops, and raise bees.

**Saturday, April 18**  
**1:00 PM - 2:00 PM**  
 Baker Woodlot, Entrance

## Vernal Pools in MSU's Baker Woodlot: Our Spring Wake-up Call!

Vernal pools are much more than mud puddles. They're our first sign of life in spring. Come tour one of these special features in MSU's Baker Woodlot.

**Saturday, April 18**  
**1:30 PM - 2:00 PM**  
**2:30 PM - 3:00 PM**  
 Landscape Services Building,  
 Lobby

## Tour Arboriculture at MSU

Tour the Landscape Services facility and see some of the equipment and tools we use to maintain the trees on MSU's campus.

**Saturday, April 18**  
**2:00 PM - 2:30 PM**  
**2:45 PM - 3:15 PM**  
 Surplus Store and Recycling  
 Center, Materials Recovery  
 Facility

## MSU Recycling: Behind the Scenes Tour

Join us for an inside look at MSU's material recovery facility, where we process over 8 million pounds of recyclables annually.

**Saturday, April 18**  
**2:00 PM - 2:50 PM**National Superconducting  
Cyclotron Laboratory,  
Lecture Hall**Saturday, April 18th**  
**2:15 PM - 3:00 PM**  
**3:15 PM - 4:00 PM**South Campus Anaerobic  
Digester, Research and  
Education Center**Saturday, April 18**  
**2:15 PM - 3:00 PM**Abrams Planetarium, Sky  
Theater**Saturday, April 18**  
**3:15 PM - 4:00 PM**Beal Botanical Garden,  
Main Library Entrance**Saturday, April 18**  
**9:00 PM - 11:00 PM**

Observatory, Atrium

**Sunday, April 19**  
**12:00 PM - 4:00 PM**Harris Nature Center  
3998 Van Atta Road  
Okemos, MI 48864**Wednesday, April 22**  
**9:00 AM - 5:00 PM**MSU Museum, Science on a  
Sphere Gallery**Tour the National Superconducting  
Cyclotron Laboratory**Visit the world-class rare isotope research facility in the  
heart of MSU's campus.**MSU Anaerobic Digester Tour**

Tour MSU's poop to power facility.

**Nuclear Science from a Whole New  
Angle: Virtual Tour of the NSCL and FRIB**Take a "virtual tour" of the world-class rare isotope  
facilities NSCL and FRIB.**Wild Plant Foods and the Salad Bar of  
Spring**This tour of the Beal Botanical Garden showcases the  
edible plants that comprise spring wild vegetables.**Public Observing at MSU Observatory**If the weather is clear, we'll be open for stargazing with  
our 24-inch telescope and additional smaller scopes.**Explore Harris Nature Center Open House**Explore nature in the HNC Nature Exploration Area.  
Pick up an activity sheet and then have fun  
completing challenges at each play feature.**Celebrate Earth Day on Science on a  
Sphere at the MSU Museum**Join us to celebrate the 50th anniversary of the first  
Earth Day through dynamic public programs on  
Science on Sphere at the MSU Museum.



# NIGHTS AT THE MUSEUMS

Visit a museum near you to discover the wonders of STEAM!

**Tuesday, April 14**  
**5:00 PM - 8:00 PM**

MSU Broad Art Museum,  
Lobby

## **MSU Broad Art Museum Night at the Museums**

An evening of science + art inspired activities jointly hosted by the MSU Museum and the MSU Broad Art Museum.

---

**Tuesday, April 14**  
**5:00 PM - 8:00 PM**

MSU Museum, Entry Hall

## **MSU Museum Night at the Museums**

An evening of science + art inspired activities, jointly hosted by the MSU Museum and the MSU Broad Art Museum.

---

**Tuesday, April 14**  
**5:00 PM - 8:00 PM**

MSU Museum, Entry Hall

## **The Roc at MSU: What Can We Learn From a Skeleton?**

The Roc is MSU's new skeletal replica of the largest-ever bird. We will explore their biology and the themes of convergent evolution and extinction.

---

**Thursday, April 16**  
**5:00 PM - 7:30 PM**

Impression 5 Science Center  
200 Museum Drive  
Lansing, MI 48933

## **Impression 5 Night at the Museum**

Explore the science center and hands-on activities, including PLAY, a temporary exhibit highlighting the different games designed by MSU students!

---

**Thursday, April 16**  
**5:00 PM - 5:30 PM**

Impression 5 Science Center  
200 Museum Drive  
Lansing, MI 48933

## **WILX-TV Channel 10 Live Weather Forecast from Impression 5 Science Center**

Experience a live weather remote forecast from WILX-TV meteorologist and on-air personality, Andy Provenzano.

**Thursday, April 16****7:00 PM - 9:00 PM**Great Lakes Maritime  
Heritage Center  
500 West Fletcher Street  
Alpena, MI 49707**Friday, April 17****5:00 PM - 8:00 PM**Potter Park Zoological  
Society  
1301 S. Pennsylvania Avenue  
Lansing, MI 48912**Thursday, April 23****5:00 PM - 8:00 PM**Michigan History Center  
702 W. Kalamazoo Street  
Lansing, MI 48915**Thursday, April 23****6:00 PM - 7:00 PM**Michigan History Center  
702 W. Kalamazoo Street  
Lansing, MI 48915**Saturday, April 25****8:00 AM - 12:00 PM**Belle Isle Aquarium  
3 Inselruhe Avenue  
Detroit, MI 48207**Saturday, April 25****10:00 AM - 4:00 PM**Yankee Air Museum  
47884 D Street  
Belleville, MI 48111

## **Earth Is Blue: A Closer Look at National Marine Sanctuaries in A Night at the Thunder Bay National Marine Sanctuary**

Enjoy a selection of short films about science and exploration across the 14 sites within the National Marine Sanctuary System.

---

## **Potter Park Zoo: An Evening of Awesome, Interactive Experiences at a Living Museum**

Join Potter Park Zoo staff, zookeepers, and volunteers for an exciting night of science as we explore the natural world and the animal kingdom.

---

## **Secret Lives of Michigan Objects at Michigan History Center**

Meet the “secret agents of deterioration” and learn how to slow them down through hands-on experiments for all ages.

---

## **The Building Blocks of Matter: Atoms or LEGOs?**

Build a LEGO Chart of Nuclides to discover the secrets behind nuclear behavior!

---

## **The Great Global Cleanup--Detroit River at Belle Isle State Park**

In celebration of Earth Day's 50th anniversary, please join The Belle Isle Conservancy at the Great Global Cleanup—Detroit River.

---

## **Fly into Science: Discover the Unseen Mysteries of Flight at the Yankee Air Museum**

Explore the “invisible” science that lies below the surface of a lake, behind the fuselage of a plane, or under the feathers of a bird's wing.

**Saturday, April 25  
1:00 PM - 6:00 PM**

Charles H. Wright Museum  
of African American History  
315 E. Warren Avenue  
Detroit, MI 48201

**How are Sea Lamprey Controlled?**

The sea lamprey is an incredibly destructive invasive species, but the good news is they can be controlled. Come see real lampreys in person.

**Saturday, April 25  
1:00 PM - 6:00 PM**

Charles H. Wright Museum  
of African American History  
315 E. Warren Avenue  
Detroit, MI 48201

**Science--Making It Happen at the Charles H. Wright Museum of African American History**

Explore the science of making things happen. Turn possibilities into realities! Where will your quest take you?

**Thursday, April 30  
6:00 PM - 8:00 PM**

Air Zoo  
6151 Portage Road  
Portage, MI 49002

**An Evening at the Air Zoo**

Enjoy hands-on science activities, flight simulators, amusement park rides, and much more during this free evening at the Air Zoo.





# STATEWIDE ASTRONOMY NIGHT

Find a location near you to enjoy the wonders of the Universe!  
Presentations and hands-on activities for everyone will vary at each location.

**Friday, April 17**  
**5:00 PM-8:30 PM**

Kalamazoo Valley Museum  
230 N Rose Street  
Kalamazoo, MI 49007

## Looking into the Sky with New Eyes at Kalamazoo Valley Museum

Come to the Kalamazoo Valley Museum for hands-on activities, planetarium shows, and two speakers.

---

**Friday, April 17**  
**5:00 PM - 8:00 PM**

Kingman Museum  
175 Limit Street  
Battle Creek, MI 49037

## Statewide Astronomy Night at Kingman Museum

Join us in Battle Creek for hands-on Earth and space science experiences: planetarium shows, telescope demonstrations, and themed refreshments.

---

**Friday, April 17**  
**6:30 PM - 11:00 PM**

Hammond Planetarium at  
Henry Ford College  
5101 Evergreen Road  
Dearborn, MI 48128

## Astrophotography for Beginners and Advanced at Henry Ford College

Learn to image the sky with everything from a smart-phone or DSLR camera through to deep-space astrophotography with telescopes.

---

**Friday, April 17**  
**7:00 PM - 9:00 PM**

Abrams Planetarium, Sky  
Theater

## Big Astronomy: People, Places, Discovery at Abrams Planetarium

See the world premiere of the show, Big Astronomy: People, Places, Discovery, and meet the production team.

---

**Friday, April 17**  
**7:00 PM - 10:00 PM**

Hurst Planetarium  
3328 S Oakwood Drive  
Jackson, MI 49203

## Ella Sharp Museum's Hurst Planetarium: Our Shared Night Sky

Experience the Michigan night sky and explore the Universe from home. Join us at Hurst Planetarium for a sky tour followed by telescope observing.

**Friday, April 17**  
**7:00 PM - 10:00 PM**

Saginaw Bay Visitor Center  
3582 State Park Drive  
Bay City, MI 48706

**Statewide Astronomy Night at Bay City State Park**

Enjoy hands-on astronomy activities, a free visual presentation about backyard stargazing followed by night sky viewing.

---

**Friday, April 17**  
**8:00 PM - 10:00 PM**

MSU Observatory  
4299 Pavillion Drive  
Lansing, MI 48910

**Statewide Astronomy Night at the MSU Observatory**

Explore the Universe through telescopes and hands-on activities. Event takes place rain or shine.

---

**Friday, April 17**  
**8:30 PM - 11:30 PM**

James C. Veen Observatory  
3308 Kissing Rock Avenue  
SE Lowell, MI 49331

**Statewide Astronomy Night at Veen Observatory**

Visit the Veen Observatory for the Statewide Astronomy Night and learn more about the spring night sky.



# SCIENCE CAFES AND PUBS

Our Café/Pub series brings scientists out of the laboratory and into your favorite café and bars.

**Saturday, April 4**  
**7:00 PM - 9:00 PM**

The Grid Arcade & Bar  
226 E César E. Chávez  
Avenue  
Lansing, MI 48906

**Wednesday, April 8**  
**7:30 PM - 9:30 PM**

The Loft  
414 E Michigan Avenue  
Lansing, MI 48933

**Thursday, April 9**  
**7:00 PM - 8:00 PM**

UrbanBeat Event Center  
1213 Turner Road  
Lansing, MI 48906

**Thursday, April 9**  
**8:00 PM - 10:00 PM**

SpeakEZ Lounge  
600 Monroe Avenue NW  
Grand Rapids, MI 49503

**Monday, April 13**  
**7:00 PM - 8:00 PM**

Lansing Brewing Company  
518 E Shiawassee Street  
Lansing, MI 48912

**Monday, April 13**  
**8:00 PM - 8:30 PM**

Lansing Brewing Company  
518 E Shiawassee Street  
Lansing, MI 48912

## Beat the Scientist

Come listen to talks by the interviewees of The Sci-Files, while drinking beer for science and playing arcade games.

---

## Astronomy on Tap

Astronomy is even better with beer. Come learn how scientists explore the universe at a bar near you.

---

## Propagation Lab

Dig in and learn all about the benefits of working with plants and how you can grow your collection through propagation.

---

## Grand Rapids Science on Tap

Join Grand Rapids Science on Tap for conversation, debate, and interaction between scientists and the public while drinking a beer.

---

## Our Ancestors: The Evolution of Stars

Take a cosmic trip to learn about the evolution of stars and meet our true ancestors.

---

## Night Sky in Lansing

Check out what's up in the night sky in the Abrams Planetarium portable dome.

**Monday, April 13**  
**8:30 PM - 9:30 PM**

Lansing Brewing Company  
518 E Shiawassee Street  
Lansing, MI 48912

**Building Better Space Teams: Tracking Team Interactions, Conflict, and Attitudes in Space Mission Analogs**

Getting along with others in a tiny mission base is hard! Thankfully, scientists are working on ways to maintain effectiveness in extreme teams.

**Wednesday, April 15**  
**7:00 PM - 8:00 PM**

UrbanBeat Event Center  
1213 Turner Road  
Lansing, MI 48906

**News from the Underground and the Magic of Mycelium**

See the unseen—mycelium and its root purpose here on Earth.

**Monday, April 27**  
**7:00 PM - 8:30 PM**

Michigrain Distillery  
523 E Shiawassee Street  
Lansing, MI 48912

**Communication (Science) On Tap**

Communication on Tap provides an opportunity for the community and communication researchers to discuss current work in an informal and fun setting.

**Tuesday, April 28**  
**7:30 PM - 9:30 PM**

The Loft  
414 E Michigan Avenue  
Lansing, MI 48933

**Biology on Tap**

Biology is best with beer! Free event featuring fun and informal presentations by local researchers and biologists. Prizes, trivia, and more!

---

## FESTIVAL ACKNOWLEDGEMENTS

---

### Science Festival Team

#### University Outreach and Engagement

**Roxanne Truhn**

Coordinator

*MSU Science Festival*

**Katherine Hagman**

Assistant Coordinator

*MSU Science Festival*

**Student Assistants**

Hazel Anderson, Reanna Lotrey.

Abigail Martinez

### With Support From

#### University Outreach and Engagement

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Interim Associate Provost

*Adjunct Faculty, Department of Human  
Development and Family Studies*

**Burton A. Bargerstock**

Director

*National Collaborative for the Study  
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and Information*

*Technology Special Adviser to the  
Associate Provost*

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*Communication and Information  
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Information Technology Professional

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Technology Support Coordinator

**Hiram E. Fitzgerald**

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*Co-Founder MSU Science Festival*

**Renee Leone**

Co-Founder

*MSU Science Festival*

### Advisory Committee

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*Department of Mechanical Engineering*

**Renee Bayer**

Associate Director of Outreach

*CREATE for STEM Institute*

**Stacey Camp**

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*Department of Anthropology*

*Director, Campus Archaeology Program*

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Engineering/Accelerator Physicist

*National Superconducting Cyclotron Laboratory*

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---

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---

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Michigan Natural Features Inventory  
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MSU Broad Art Museum  
MSU Child Development Laboratories  
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MSU Libraries  
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## Community Partners

Air Zoo\*  
Ann Arbor Hands-On Museum\*  
Bay City State Park\*  
Belle Isle Conservancy\*  
Capital Area District Libraries  
Charles H. Wright Museum of African American History\*  
Cooperative Institute for Great Lakes Research  
(CIGLR)  
Delta College Planetarium\*  
East Arbor Architecture  
Ella Sharp Museum  
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Grand Rapids Public Museum,  
Planetarium\*  
Grand Valley State University  
Great Lakes Fishery Commission  
Harris Nature Center\*  
Henry Ford College\*  
Impression 5 Science Center\*  
IQhub  
Kalamazoo Valley Museum\*  
Kingman Museum\*  
Lansing Brewing Company\*  
Lansing Community College Youth Program  
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Michigan Science Center  
Michigrain Distillery\*  
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NOAA Great Lakes Environmental  
Research Laboratory (GLERL)  
Oakland County Water Resources Commissioner's  
Office  
Open Source Ecology  
Potter Park Zoo\*  
Psy's Creations  
REACH Studio Art Center  
Speak EZ Lounge\*  
Spring Arbor University  
Symbiosis International  
The Grid Arcade and Bar\*  
The Loft\*  
University of Michigan, Molecular and Integrative  
Physiology  
UrbanBeat Event Center  
Victory Martial Arts  
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Yankee Air Museum\*

\*MSU Science Festival Host Sites

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---

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Connecting university knowledge with community knowledge in mutually beneficial ways



**Darrin Rockcole**

**Barrett Tryon**

**Ida Tedesco**

**Weekday Mornings**

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**4:30am - 7am**



**YOUR BREAKING NEWS  
WEATHER AUTHORITY**

The **Facility for Rare Isotope Beams** and the **National Superconducting Cyclotron Laboratory** are proud sponsors of the MSU Science Festival.

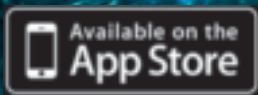
Our laboratory enables scientists to make discoveries about the properties of rare isotopes, the inner workings of atoms, and their role in the universe.



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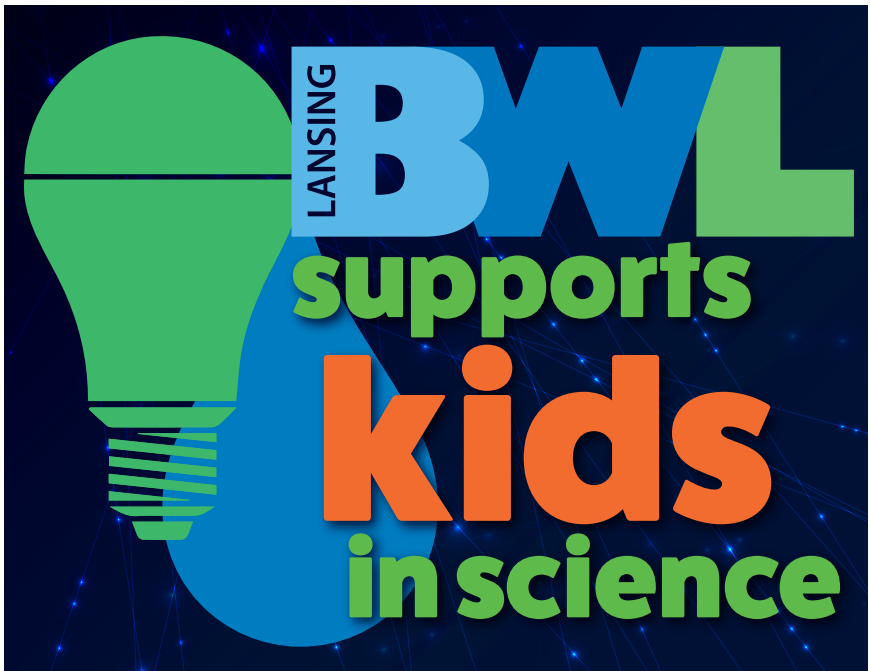
The Lansing Promise has a simple goal, to ensure that every child living and schooling within the Lansing School District boundaries is successful after high school. The Promise works to make success for Lansing's kids a reality by investing in scholarships toward college and career training.

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For more information and to join the movement, visit [www.LansingPromise.org](http://www.LansingPromise.org).



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## Science Festival Activities at the MSU LIBRARIES

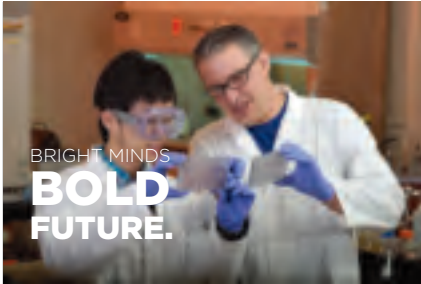
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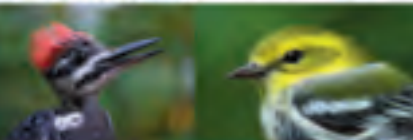
# SPARTANS WILL.



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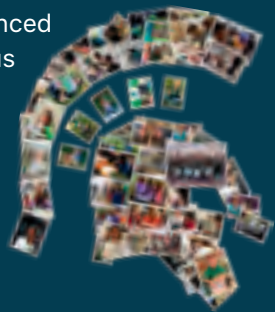


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