SPECIAL GUEST: ASTRONAUT JOSH CASSADA
KEYNOTE SPEAKER: LEE MAREK
http://www.umflint.edu/k12
Welcome to the University of Michigan-Flint!

As the Provost at the University of Michigan-Flint, I am delighted to welcome you to our campus for a day of experiential learning! Today, at the 10th Annual Super Science Friday, you will be joining over 800 Genesee County middle school students as they explore and learn more about the wonderful world of science.

Since December, the University of Michigan-Flint faculty, staff and students have been working diligently to create twenty-four interactive workshops that will excite you about science. During your time with us, you may explore the properties of matter, learn about alternative energy, direct a robot or find out how crime fighters use science in their investigations. The presenters are all looking forward to answering your questions about their sessions and our university.

This year’s Super Science Friday will again feature a special presentation by Mr. Lee Marek, a member of the Weird Science demonstration team. He has gained national attention through his numerous appearances on television and at national science conferences. I know he will entertain and educate us about science through his spectacular demonstrations.

We are confident you will learn new and exciting things about science during your time with us today and hope that you will be inspired to include science in your future plans. While you are years away from entering the work force, careers in science are varied and exciting! Perhaps you could invent an alternative fuel source, cure a disease or design a probe that will explore outer space. The possibilities are only limited by your imagination!

Have a wonderful day and GO BLUE!

Douglas Knerr, Ph.D.
Provost and Vice Chancellor for Academic Affairs

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Dr. Josh A. Cassada was born in San Diego, California, but considers his hometown to be White Bear Lake, Minnesota. He earned a Bachelor of Arts Degree in Physics (1995) from Albion College in Michigan and then went on to earn a Master of Arts Degree (1997) and a Doctorate (2000) in Physics with a specialty in high energy particle physics from the University of Rochester, Rochester, New York.

Following the completion of his Ph.D. thesis, Dr. Cassada was commissioned as a naval officer in June 2000 and earned his wings of gold as a naval aviator in 2001. He was deployed to the Western Pacific, Mediterranean Sea and Central America and served in various operating including Iraqi Freedom, Enduring Freedom and multiservice tsunami relief during Operation Unified Assistance. Following graduation from the U.S. Naval Test Pilot School, he served as developmental test pilot and an instructor pilot. In 2011, he was assigned to DCMA Boeing Seattle as Chief of Flight Operations. He later co-founded Quantum Opus, LLC, providing high-speed, low-loss photon detectors to enable next-generation experiments in quantum optics, optical quantum computation, single-photon communication, low-flux biophotonics and remote sensing. He has accumulated more than 2,500 flight hours in over 40 different aircraft and 23 combat missions.

Dr. Cassada was selected in June 2013 as one of eight members of the 21st NASA astronaut class. His astronaut candidate training included scientific and technical briefings, intensive instruction in International Space Station systems, Extravehicular Activity (EVA), robotics, physiological training, T-38 flight training, and water and wilderness survival training. He completed astronaut candidate training in July 2015, and is now qualified for future assignment.

Super Science Friday is thrilled to once again welcome Weird Science’s Lee Marek to the University of Michigan – Flint campus!

Mr. Marek taught Chemistry and presented chemical demonstrations and teacher programs at the University of Illinois at Chicago (UIC) for 12 years. Prior to that, he taught AP and Honors Chemistry at Naperville North High School for nearly 30 years. He has received numerous awards including the Presidential Award for Excellence in Teaching Science, Christa McAuliffe Fellow, American Chemical Society’s James Bryant Conant Award, CMA’s National Catalyst Award for Teaching Chemistry and Tandy Technology Scholar Award for Outstanding Teachers, and many others.

Mr. Marek was the catalyst behind the Weird Science demonstration team, a small group of gifted teachers that toured the country inspiring others to explore the magic of science. He has lead well over 600 workshops/programs and has presented to over 300,000 teachers, students and general public. Lee was a regular (over 35 performances by him or his students) on “The David Letterman Show” with one of his segments as a finalist for an Emmy Award. He has authored several kid’s science books and kits and has worked on several projects for Nobel Laureate Leon Lederman.

Mr. Marek’s complete vita and other information on his programs and activities can be found on his web page: http://www2.chem.uic.edu/marek/
YOUR PRESENTERS

GET EXCITED ABOUT ENGINEERING!
Engineers are people who use communication skills, creativity and problem solving skills to dream up, design, improve and build things that matter. Explore the world of engineering and apply concepts of the Engineering Design and Problem Solving process through a fun, hands-on team challenge!

LAURA SUTTON is a Lecturer with the Computer Science, Engineering and Physics Department. She is an alumnus of UM-Ann Arbor's Computer Engineering program, has a Master's in Engineering Management and enjoys sharing her passion for engineering with others.

BRIDGE DESIGN AND CONSTRUCTION
Students will use popsicle sticks to build a bridge based on the design criteria that will be given to students.

DR. OLANREWAJU ALUKO received his PhD in Mechanical Engineering, and he likes to encourage students to study engineering.

THE INCREDIBLE EGG DROP
Students are challenged to build a container that will prevent an egg from breaking or cracking when dropped from the top floor of the Harding Mott University Center. Participants will learn topics in kinematics and dynamics. All supplies will be provided.

JAMES ALSUP is an Assistant Professor in the Department of Computer Science, Engineering and Physics. His research is focused on theoretical physics and applications of black holes to strongly coupled systems.

BEHIND THE SCENES IN THE OPERATING ROOM:
ANESTHESIA MAKES SURGERY POSSIBLE!
Nurse Anesthetists work to monitor your heart, blood vessels and breathing during surgery. They also keep you asleep, comfortable and pain free. Come visit us and get a basic overview of how anesthesia makes surgery possible! Students will be able to interact with mannequins and learn how anesthetists use airway equipment and breathing tubes to assist patients with their breathing during surgery.

KATIE DILLON & AUDREY KON are registered nurses and senior nurse anesthesia students in the UM-Flint/Hurley Medical Center Master of Science in Anesthesia program. They will graduate in August 2016.

INTRODUCTION TO WEB DESIGN AND PROGRAMMING WITH HTML
Create a Basic Web with Editors and explain HTML format.

DR. THERESA KRAFT has been teaching Computer Engineering and Programming at the University of Michigan since 2006. She also teaches Microsoft Office classes.

BE A SCIENTIST: MAKE YOUR OWN THERMOMETER
Temperature is something that we deal with every day and temperature measurements are one of the most important skills that scientists and engineers must have. In this workshop several temperature measuring tools will be demonstrated including infrared thermal cameras and various types of contact and non-contact thermometers. The theoretical basis of thermometers - the zeroth law of thermodynamics - will also be discussed. Join this workshop to find out how thermometers work when you make your own.

MIHAI G. BURZO is an Assistant Professor of Mechanical Engineering at UM Flint. His research interests are heat transfer in microelectronics and nanostructures as well as lie detection, thermal comfort and driver alertness detection using thermal imaging and biosensors. His passions are thermal sciences, ice hockey and soccer.

SCIENCE IN THE LIBRARY: ICEBERGS, THE INTERNET, AND OTHER THINGS THAT START WITH "I"
Careful observation is one of the most important skills for a scientist to develop. Students in this session will participate in a hands-on observation exercise involving an "iceberg" and information resources available in the library. They then will work in teams to present briefly on a topic of interest to them, using information found in an online scientific journal.

LAURA FRIESEN is a reference librarian who specializes in health sciences and teaches students and scientists how to use library resources to find the information they need to support their research.

MINDFULNESS FOR HEALTHY LIVING
Learn how to be more centered and focused through experiential mindfulness practice.

THERESA LANDIS is the Director of Recreational Services and an Adjunct Lecturer for Public Health & Health Sciences at the UM-Flint. She has a Master of Arts degree in Exercise Science and a Specialist’s degree in Educational Leadership.

PHYSICAL COMPUTING WITH MICROCONTROLLERS
In this workshop students will program a microcontroller (Arduino Uno) to create an interactive physical system that can sense light and proportionally control an alarm frequency signal.

BRIAN MCBRIDE has been a Lecturer in the department of Computer Science, Engineering, and Physics since 2009. He enjoys sharing his experience and knowledge of computer information systems, computer programming and computer-aided design.

PUTTING THE PHYSICAL IN PHYSICAL THERAPY!
Students will learn about how physical therapists can fix injuries to the bones and muscles of the human body. General anatomy, exercise performance, balance, heart & lung testing and treatments such as therapeutic ultrasound/electrical stimulation will be discussed and presented. Students will be able to participate in the demonstration and get hands on with the various tools that physical therapists use.

AMY YORKE, ALAN FRENDENDALL, ERIC FRIDLINE, LEOR GILADI, NICHOLAS MARZEC, LUKE PRIVETTE
ALAN, ERIC, LEOR, NICK, and LUKE are all 2nd year physical therapy students in the entry-level Doctorate of Physical Therapy (DPT) program at UM-Flint.
FIRST ROBOTICS DEMO
This workshop will highlight the GEC Robotics Team TESLA’s robot.
This will be brought to you by the GENESEE EARLY COLLEGE team of students.

BLOOD, GUTS, & GORE: SPECIAL EFFECTS STAGE MAKEUP RESEARCH AND TECHNIQUES
In this workshop students will learn the basic techniques of special effects makeup application and how research is an integral part of the process of doing realistic special effects makeup.

SHELBY NEWPORT & ADAM DILL
SHELBY NEWPORT is an Associate Professor at UM-Flint and is the Resident Costume Designer. She also designs costumes and makeup regionally at Purple Rose Theatre, Tipping Point Theatre and Flint Youth Theatre. ADAM DILL is the Costume Shop supervisor and Lecturer at UM-Flint. He designs and dresses regionally at Flint Youth Theatre, Play Markers Repertory Company, and Udal Shakespeare Festival.

USING GEOSPATIAL TECHNOLOGY TO CREATE MAPS
Through the use of geospatial technology, Troy Rosencrants and Dr. Greg Rybarczyk will guide the students through the creation of maps using spatial data. First, they will demonstrate the use of Google Earth TourBuilder. The students will then learn how to view, edit, and create a personalized map using other map-making software.

TROY ROSECRANTS & DR. GREG RYBARCZYK
TROY ROSECRANTS is the GIS Center Manager and is in charge of managing the projects/activities within the Center. DR. GREG RYBARCZYK manages the GIS program at UM-Flint and has used GIS for the past 10 years in the private, public, and government sectors.

HEARTSAVER CPR
Basic adult/child CPR skills with return demonstration and testing available if interested in CPR card.

KIMBERLY VANSLYKE-SMITH is a graduate of UM-Flint’s 1998 BSN program and 2014 MSN program. Currently Clinical faculty since 2006, RN at Hurley and NP with Genesee County Health Department. She has been a BLS/CPR instructor since 2005.

HIP KIDS ARE FIT KIDS
Meet with nurses to monitor your heart with an electrocardiogram, check your blood pressure, use a stethoscope to listen to your heart, and challenge your classmates in a fast round of health jeopardy all to the beat of “Just Don’t Stop the Music”.

SONJA MOREAU is a Master’s prepared Registered Nurse with a background in adult critical care. She has lived and worked in this community all of her life. Teaching about diet and exercise as it relates to the heart is important to teach to children because people start developing their habits at this age.

TRAUMA IMPACT
During this interactive session Nicole Matthews will discuss real life emergencies and define the students’ role in an emergency response. Tips for responding to trauma and common emergencies will be incorporated. Trauma is the most frequent cause of death amongst 6th-8th graders. The following question will be answered: How can trauma deaths and injury be prevented?

NICOLE MATTHEWS is the hospital Injury Prevention Coordinator for Hurley and the chairperson for Safe Kids of Greater Flint. As a registered nurse working in the trauma ICU, and previously a practicing nurse in Novi, Nicole sees the importance of injury prevention. Injuries are not accidents, often a choice may be made, and the Injury Prevention program utilizes educational opportunities to broaden awareness, and assist a child in making a smarter choice.

YOUR DNA (ON A CHAIN)
Have you ever wondered what your DNA actually looks like? Well, now you can have the chance to find out! We will isolate some of your DNA (don’t worry, it doesn’t hurt) and let you take it home with you.

FRANK MISKEVICH came to UM-Flint from Texas, and he studies how cells send signals to one another. He is very interested in how the brain gets put together and is looking at how certain DNA sequences control this process. Since DNA serves as a control for most things the body does, you can learn a lot by studying changes in the DNA.

LEARNING THROUGH MOVEMENT
We will examine how your body moves and the process of muscle memory through movement, agility and coordination. Wear your sneakers!

JESSICA VIERTLOECK and CHRIS CLOLINGER are UM-Flint Rec Center Professional Staff Members and Professors, Certified Personal Trainers and Group Fitness Instructors and Previous College Athletes in Basketball and Baseball.

THE CASE OF LOIS McARTHUR
Tragic suicide or horrible murder? Students will use blood, hair, fiber, finger printing and handwriting analysis to solve this case.

THE MOLECULAR BIOLOGY CLUB is a student organization.

PLATONIC SOLIDS
The five Platonic Solids were an attempt on the part of the ancient Greeks to understand the molecular structure of nature. In spite of having no technology these structures were surprising insightful. Participants will use Polydrons to build polyhedral.

DR. MATT WYNEKEN is an Associate Professor of Mathematics Education at UM-Flint. He is incredibly curious about how mathematics is reflected in the world.

EXPERIENCING CHEMISTRY THROUGH A DIFFERENT LIGHT
The following question will be answered: How can trauma deaths and injury be prevented?

SAMANTHA GRATHOFF, MONIQUE WILHELM & JESSICA TISCHLER
SAM GRATHOFF is a Laboratory Coordinator and Outreach Liaison, MONIQUE WILHELM is the Laboratory Supervisor and Safety Coordinator, and JESSICA TISCHLER is the Chair and an Associate Professor in the Department of Chemistry and Biochemistry. All three serve as faculty advisors for the Chemistry Club. The UM-Flint Chem Club is a Student Affiliate’s chapter of the American Chemical Society (ACS), the largest scientific organization in the world. The Chem Club has received national recognition from the ACS the last thirteen years in a row for its outstanding activities and contributions to the community.

COLOR THEORY
Spend some time painting to learn about color mixing and theory.

LISA BORTON is the resident scenic designer in the Theatre and Dance department. She has worked professionally as a scenic artist for the Cleveland Play House & Great River Shakespeare Festival.
UNIVERSITY OF MICHIGAN-FLINT
AREAS OF STUDY

ARTS & SCIENCES
Actuarial Mathematics
Africana Studies
Anthropology
Applied Science
Art and Design
Art History and Criticism
Art-Studio Art
Biochemistry
Biology
Chemistry - General
Chemistry
Communication
Computer Information Systems
Computer Science
Criminal Justice
Dance
Economics
Energy & Sustainable Systems
Engineering
English
English, Specialization in Linguistics
English, Specialization in Literature
English, Specialization in Writing
Environmental Science & Planning
Fine Arts
French
French & International Studies
French & Linguistics
History
Honors Program
Human Biology
Interdisciplinary Studies
International and Global Studies Program
Journalism
Mathematics
Mechanical Engineering
Molecular Biology & Biotechnology
Music
Music Education
Music Performance
Philosophy
Philosophy, Emphasis in Ethics, Social & Political Philosophy of Neuroethics Program
Physics
Political Science
Psychology, Applied
Psychology
Psychology, Research
Public Administration
Social Sciences, joint programs
Sociology
Spanish
Spanish & International Studies
Spanish & Linguistics
Theatre
Theatre Design & Technology
Theatre Performance
Visual Arts Education
Visual Communications
Wildlife Biology

PRE-PROFESSIONAL PROGRAMS
Pre-Dentistry
Pre-Law
Pre-Medicine
Pre-Pharmacy
Pre-Physical Therapy
Pre-Veterinarian

EDUCATION & HUMAN SERVICES
Early Childhood Education
Elementary Education
Literacy K-12
Secondary Education
Social Work
Technology in Education
Urban Multicultural Education

MANAGEMENT
Accounting
Entrepreneurship and Innovation Management
Finance
General Business
International Business
Management
Marketing
Organizational Behavior & Human Resources Mgmt

HEALTH PROFESSIONS & STUDIES
Anesthesia
Clinical Laboratory Science/Medical Technology
Health Care Administration
Health Education
Health Sciences
Nursing
Physical Therapy
Public Health
Radiation Therapy

GRADUATE PROGRAMS
Accounting (MS)
Anesthesia (DrAP)
Anesthesia (MS)
Applied Communication (MA)
Arts Administration (MA)
Biology (MS)
Business (Post-Master’s Certificate)
Business Administration (MBA)
Business Certificate
Computer Science and Information Systems (MS)
Early Childhood Education (MA)
Education (Ed.D.)
Education with Certification (MAC)
- Detroit Teacher Project
Education Specialist (Ed.S.)
Educational Administration (MPA)
Educational Technology (MA)
English Language and Literature (MA)
Health Education (MS)
Liberal Studies (MA)
Literacy Education (MA)
Mathematics (MA)
Nursing (Accelerated MSN)
Nursing (DNP)
Nursing Certificate
Physical Therapy Certificate
Physical Therapy Residency
Physical Therapy (Entry-Level DPT)
Physical Therapy (Post-professional tDPT)
Physical Therapy (Ph.D.)
Public Administration (MPA)
Public Health (MPH)
Social Sciences (MA)

SUPER SCIENCE FRIDAY IS PART OF THE UM-FLINT K-12 PARTNERSHIPS PROGRAM.

Other K-12 Partnerships include:
- DEEP (Dual Enrollment Educational Partnerships)
- Carman Ainsworth STEM Early College
- Genesee Early College (GEC)
- Grand Blanc Early College (GBEC)

For more information, please see http://www.umflint.edu/k12
Schedule of Events

8:00am-9:30am  Arrival and Check-In at UCEN/Campus Tour
9:45am-10:45am Workshop Session 1
11:00am-12:00pm Workshop Session 2
12:15pm-12:30pm Pizza Lunch in Recreation Center
12:30pm-1:15pm Keynote Presentation
   Lee Marek
   (http://www2.chem.uic.edu/marek/)
1:30pm-1:45pm Dismissal/Load busses from UCEN
Merkley-Youth Charitable Trust at FirstMerit Private Bank

Herbert J. & Dorothy W. Booth Fund of the Community Foundation of Greater Flint

This event was made possible in part by: