SCIENCEBLAST
Tuesday, May 14, 2019 at Williams College

Sponsored by the Williams Center at Mt. Greylock and the Williams College Science Center

Science is more than just knowledge; it is a way to explore the world. Science is about innovation, creativity and ingenuity to find answers to new problems. The mission of ScienceBlast is to expose 10th grade students to the college-level sciences and lab facilities while inspiring them to explore a range of scientific fields as they think about their science options in college.

Science Workshops
All workshops are offered during both sessions and will be capped at fifteen students. Session descriptions are on the second page.

Rank your session choices online at the following website:
https://learning-in-action.williams.edu/local-education-outreach/science-blast-mount-greylock/

- **Play-Dough Planets**
  - Thompson Physics Lab 301

- **Why Knot?**
  - Clark Hall 204

- **Physics of Chocolate**
  - Thompson Physics Lab 215

- **Science of Taste**
  - Thompson Biology Lab 202

- **Seeing the Invisible**
  - Morley Scientific Lab 245

- **Storms, Waves and Disappearing Beaches**
  - Clark Hall 103

Schedule of Events

8:00-8:15 am  Opening Remarks (Thompson Physics Lab – TPL 203)
8:30-9:30  Science Workshop, Session 1
9:35-9:55  Snack break on the Science Quad (Eco Café, rain location)
10:00-11:00  Science Workshop, Session 2
11:05-11:15  Wrap-up and questions (Thompson Physics Lab – TPL 203)
11:15  Depart Williams for Mt Greylock

If you have any questions, please contact Kaatje White (kwhite@williams.edu)
SCIENCE WORKSHOP DESCRIPTIONS

Play-Dough Planets
Kevin Flaherty (’20) (Astronomy)  
Location: Thompson Physics Lab 301
Planets are everywhere in our galaxy, with recent studies indicating that nearly every star has at least one planet. These planets come in a variety of sizes, including small rocky planets like our Earth, gas giants like Jupiter and Saturn, as well as a new type of planet called a ’Super-Earth’ for which we have no analog in our solar system. In this workshop we will use play-dough to create models of the planets in our solar system, exploring the variety of sizes between rocky and gas giant planets. We will also visit our rooftop observatory and (safely) view the Sun, weather permitting.

Science of Taste
Matt Carter (Biology)  
Location: Thompson Biology Lab 202
How does the tongue sense and perceive taste? In this hands-on workshop, we will taste a variety of foods and describe what is occurring on the tongue at a biological and chemical level. We will also explore how the sense of smell contributes to the flavor of food, as well as the other factors that contribute to our enjoyment of food. Finally, we will have fun with some “gastronomical illusions,” in which the brain is fooled into thinking it tastes something different from what is present on the tongue.

Seeing the Invisible
Nate Cook (Chemistry)  
Location: Morley Scientific Lab 245
How do scientists measure the concentration of gases in the air, non-invasively visualize brain tumors, or determine the size and composition of planets and stars? In this hands-on session, we’ll learn about the science and instrumentation involved in the measurement of light by building your own spectrometer! After, we’ll measure some test solutions and see how your instrument compares to a much more expensive research grade spectrometer.

Storms, Waves and Disappearing Beaches
José Constantine (Geosciences)  
Location: Clark Hall 103
On a summer’s day, it may seem as if there’s enough sand to keep beaches around forever. But on occasion, storms can whip up powerful waves that rip and tear away at the sand, dramatically eroding the coast. Climate change is expected to strengthen these storms, and there is a well-founded fear about the future of our beaches and coastal environments. Working together, we'll have the chance to generate our own waves to study beach erosion. We’ll even witness the remarkable ability of beaches to heal themselves, giving us hope for the future.

Why Knot?
Colin Adams (Mathematics)  
Location: Thompson Physics Lab 215
Knots have appeared everywhere from art, literature, and religion to seafaring. We will discuss their past history as well as their future, with emphasis on the role they play in mathematics and the applications of that role to DNA and synthetic chemistry. This will be a hands-on workshop with all audience members getting an opportunity to try their hand at making knots out of string and out of people.

Physics of Chocolate
Charlie Doret and Catherine Kealhofer (Physics)  
Location: Thompson Physics Lab 215
Most of us have some familiarity with the phases of matter—and the transformations between them—in the context of water, which boils to create steam or freezes to form ice. But you might not know that the phases of many everyday materials have been carefully engineered to be stronger, tougher, or otherwise more useful. This includes glass, steel, plastics…and chocolate! It turns out that there are at least six different solid phases of chocolate, but only one of them is the hard, glossy form that we like to eat. In this hands-on activity, we'll explore how to control phase transformations, and then apply what we've learned to "temper" chocolate, making delicious treats to eat.