



Kids' Tech University Virginia Tech

KTU is a semester-long educational research program developed by the Virginia Bioinformatics Institute at Virginia Tech in partnership with the Virginia 4-H, that puts scientists and engineers in front of children to encourage the exploration of intriguing topics in science, technology, engineering, and mathematics.

AFTER the success of the 2009 - 2015 KTU programs, we are excited to announce the 2016 Virginia Tech KTU program being offered to kids, who as of Sept. 30, 2015, are between the ages of 9 and 12. Hands-on activities follow each interactive session and an online component continues the interest and excitement after the campus activities have been completed.

GENERAL INFORMATION

- Online enrollment begins 6 pm, Oct. 19, 2015
- 450 children will be accepted into the program
- Participants accepted will represent a geographically diverse area
- For enrollment information, please visit <http://kidstechuniversity.vbi.vt.edu/>
- Registration is on a "first-come, first-served" basis that is open to children satisfying the age restriction, regardless of place of residence or academic achievements. A waiting list will be available after registration is full for a county or for the program.
- In order to keep up with the costs of providing a quality program, there will be a registration fee of \$100.00 per child, payable upon registration (no refunds). Scholarships are available. Lunch cards and a KTU t-shirt will be given to all children who attend.



KTU SCHEDULE

JANUARY 23, 2016

Dr. Will Mather, Virginia Tech

"Why do the other lines in the grocery store always seem to move faster?"

Why do the other lines in the grocery store always seem to move faster, especially when the grocery store is really busy? Answering these kinds of questions can be hard, especially since there is so much that we do not know about the problem. For example, could it be that one cashier is really slow, or maybe some of the customers are buying more than others? When scientists have trouble with these questions, they often run virtual experiments on a computer to try and figure out the answer. In this interactive session, Dr. William Mather will transform students into a giant coin flipping machine to answer hard questions, including why the other line always seems to go faster. The session ends with a discussion of how modern computers speed up this process, with comments on how students can get involved in the future of simulation science.

FEBRUARY 27, 2016

Dr. Carla Finkelstein, Virginia Tech

"How do tumors grow?: Using 3D printing to study tumor growth and development."

Dr. Finkelstein is a professor at the Virginia Tech Department of Biological Sciences and is affiliated with Fralin Biotechnology Institute and Virginia Bioinformatics Institute. She received her scientific training at the University of Buenos Aires and the Howard Hughes Medical Institute at the University of Colorado Health Sciences Center. Her research is aimed at understanding the molecular basis by which environmental factors influence sporadic breast cancer incidence with focus in circadian disruption as toxic agent. She also seeks to understand the mechanisms by which tumors develop resistance to conventional therapies and interfere with those processes using nano-based technologies.

MARCH 19, 2016

Dr. Chris Fennell, Oklahoma State University

"Why do snowflakes have six points?"

Why do snowflakes have six points? How do you make ice flow like liquid water? Why are the strawberry flavored Runts candies SO much better than the banana flavored ones? The shapes of tiny molecules direct much about the properties of materials that we see and touch. Here, we will explore molecular shape and its consequences using molecular modeling with computer simulation, 3D printing, and analogous system experiments using non-traditional materials. We will see how hands-on modeling of molecules can lead to deeper insights about the extremely small and hard to see molecular world.

APRIL 02, 2016

Dr. Yang Cao, Virginia Tech

"Why it is dangerous to introduce foreign species into our community?"

In every international travel, passengers are required to go through a security checkpoint by the U.S. Customs and Border Protection (CBP). Do you know why? Each year, CBP officers intercept tens of thousands of goods that are identified through scientific risk assessment and study as being dangerous to the health and safety of U.S. agricultural resources. Why these seemingly harmless goods are considered dangerous? That's because they may contain foreign species. A foreign species, or simply an introduction, is a species living outside its native distributional range, brought there by human activity. Non-native species can have various effects and sometimes present great threat on the local ecosystem. In this interactive session we will use simple mathematical models to demonstrate how a foreign species can reproduce and spread in a local ecosystem and why that introduction may present great danger to local habitats.

Please note: Students enrolled in the VT KTU program are enrolled for all of the KTU events that are found on this flyer.



Virginia Tech
Virginia Bioinformatics Institute

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