



## Schedule of Events!

8:00-8:30am	<b>-Registration- Topeka Zoo Encounter!</b>
8:35	<b>Welcome and Opening Remarks</b>
9am	<b>Natural History Museum - University of Kansas Theresa MacDonald and Bekkah Lampe "Rubber Chicken Science"</b>
9:30-9:40	(Groups Walk to Morning Labs)
9:40-10:30	<b>Morning Lab</b>
10:30-10:40	(Groups Return to Washburn Union)
10:45-11:15	<b>KU Athletics – University of Kansas Coach Andrea Hudy</b>
11:15-11:45	<b>Lunch With Lab Instructors and time to meet other girls!</b>
11:45-Noon	(Groups Walk to Afternoon Lab)
Noon-12:50pm	<b>Afternoon Lab</b>
12:50-1pm	(Groups Return to Washburn Union)
1-1:25pm	<b>Special Event!</b>
1:25-1:30pm	<b>Closing Remarks</b>

# “Many Hands Make Light Work”



**KU Athletics**  
**Washburn Foundation**  
**Kansas Department of Health and Environment**  
**Chartwells Dining Services**  
**KU Association for Women Geoscientists**  
**Washburn Biology Club**  
**Washburn Chemistry Club**

...And many thanks to all the walking leaders, lab leaders, assistants, and extra sets of hands!!

# Our Guest Speakers!



**Teresa MacDonald** is the Director of Education at the University of Kansas Natural History Museum. She was born and grew up in Winnipeg, Canada and earned a Bachelor of Arts honors in physical anthropology, later moving to western Canada to pursue a Master of Science in vertebrate paleontology. From there, she taught science at a rural high school in northern Ghana (West Africa), then onto the United Kingdom where she worked in a university, museum and science center before moving to Lawrence, KS. More than twenty years experience teaching science in five countries and on three continents—has given her an opportunity to work in varied settings with diverse groups from Kindergarten to college level. Teresa is also involved in several National Science Foundation grants, including *Adventures at Nanoscale: Superconductivity* and *Quarked! Adventures in the Subatomic Universe* which includes a website that features online games, animated videos and more.

**Bekkah Lampe** is the Museum Educator and summer camp lead at the University of Kansas Natural History Museum. Born and raised in Maryland—famous for its blue crabs—she holds a Bachelor of Science in biology from the University of Maryland Baltimore County and a Master of Arts in ecology, evolution and marine biology from the University of California, Santa Barbara. Bekkah has conducted fieldwork in Puerto Rico, Santa Barbara, and San Diego, and worked for the education departments of the Carolina Raptor Center in North Carolina, the Maryland Science Center and the Ty Warner Sea Center in California. Since coming to Kansas, Bekkah has taught hands-on science workshops for schools, written science poems to explore the museum and created a series of short animated online videos to explore science topics.



**Andrea Hudy** joined the University of Kansas staff as the associate director of strength and conditioning in September 2004. She was promoted to Assistant Athletics Director for Sport Performance in July 2008. Since her arrival Hudy has handled the strength and conditioning responsibilities for the KU men's basketball team. Hudy also oversees the Anderson Strength and Conditioning Complex for all KU sports except football. Additionally, Hudy is pursuing her national massage certification. Hudy came to Kansas after nine and a half years at the University of Connecticut, where she worked closely with the Huskies' national champion men's and women's basketball teams. In all, Hudy was part of eight national championship teams while at Connecticut - two men's basketball; five women's basketball; and one men's soccer. Including the seven Jayhawks that have been drafted in the NBA, she has worked with 25 former student-athletes who went on to play in the NBA. A native of Huntingdon, Pa., Hudy was a four-year letterwinner in volleyball at Maryland where she graduated in 1994. Her freshman season at Maryland, she was a member of the 1990 Atlantic Coast Conference volleyball championship team. Hudy earned her bachelor of science degree in kinesiology at Maryland and her masters of art and sport biomechanics degree from Connecticut. She is a certified strength and conditioning specialist by the National Strength and Conditioning Association and a USAW Level I Coach.

# Lab Descriptions

## Women in Science Day

Tuesday October 8<sup>th</sup>, 2013

### Lab 1: Who Dunit?



Who Dunit? That is the question our budding forensic chemists will answer using and viewing analytical techniques used in crime laboratories. The hands-on laboratory will allow students to run two types of chromatography to identify unknown substances and flame tests to differentiate various clear liquids by color changes. The identification of a white powder by infrared (IR) spectroscopy will also be demonstrated.

**Lab Leaders: Sue Salem, Sam Leung, Seid Adem**

<http://www.hometrainingtools.com/forensic-science-projects/a/1227/>

<http://jersey.uoregon.edu/vlab/elements/Elements.html>

<http://www.chemguide.co.uk/analysis/chromatography/paper.html#top>

### Lab 2: From Bach to Bond: Explorations In Music, Numbers and Cryptography

We will explore patterns both musical and mathematical. Our lab will uncover the “hidden secrets” in musical compositions and other ciphers. Come try your skills against some well-known code-breakers and learn how to encrypt information. If you are good at keeping secrets, this lab will put allow you to test your skills!

**Lab Leaders: Cathy Hunt, Donna LaLonde**



### Lab 3: Why Do You Run So Fast?



Have you ever wondered why some people can run faster, longer, better than others? How fit do you think you are? The Physical Therapy Department at Washburn University will give you an hour full of fitness testing and training tips for fitness and fun. Bring your workout clothes, running shoes, a willingness to test your fitness level, and all the questions you have about physical therapy and becoming involved in your own fitness as well as a career that focuses on helping others do the same.

**Lab Leader: Jean Sanchez**

<http://www.apta.org>

<http://www.bls.gov/ooh/healthcare/physical-therapist-assistants-and-aides.htm>

<http://www.bls.gov/ooh/healthcare/physical-therapist>

### Lab 4: Synthesis of a Frozen Colloid (or, Making Ice Cream!)

Did you know that chemistry is one of the most important ingredients in the kitchen? Home cooks and chefs use chemistry every time they make a meal. In this lab you will get a brief introduction into the world of kitchen chemistry. Then you can use your new chemistry knowledge to make your own frozen treats to eat!

**Lab Leader: Lisa Sharpe Elles**



### Lab 5: Life Within Life



Organisms in all types of environments interact with each other in a variety of ways. In many of these interactions one organism actually lives inside the other, a condition known as endosymbiosis. In endosymbiosis, at least one member of the pair benefits from the relationship, while the other member can benefit, be hurt, or be unaffected. If you have ever had an infection then you have been involved in an endosymbiosis! In this lab, we will investigate four interactions that have profoundly affected the ecology and evolution of the organisms involved as well as their environments.

**Lab Leaders: Rodrigo Mercader, Jason Emry**

<http://www.jove.com/video/197/layers-symbiosis-visualizing-termite-hindgut-microbial>

<http://www.nybg.org/bsci/lichens/lichen.html>

<http://www.biologycorner.com/worksheets/nasonia.html>

### Lab 6: Toss Out Your “Salad”-monella



Did you know that each year 1 in 6 people will get food poisoning? Food poisoning, or foodborne illness, occurs when people consume food and drinks that have been contaminated with disease causing microbes. The good news is these microbes can be kept under control by properly cooking and handling food. During this lab students will receive an introduction to microbiology in food and learn about common food borne pathogens. Students will learn about the concept of aseptic technique, awareness of contamination and how to prevent food cross-contamination.

**Lab Leaders: Stacey Sandstrom, Christy Wiens**

<http://www.cdc.gov/foodsafety/index.html>

<http://www.foodsafety.gov/>

<http://www.mars.com/global/brands/chocolate.aspx>

### Lab 7: Bleeding?!?! What do I do?!?! Concussions?? What’s the big deal?

This lab will give a brief insight into the healthcare field of athletic training. What can an athletic trainer deal with on any given day??? Concussions are a hot topic in sports medicine and the media, but do you know why? You will learn why concussions are a concern, how they affect someone’s body (by experiencing a simulation of the signs and symptoms) and how we might treat them. Severe injuries to the body’s skin can happen in athletics or everyday life, but do you know how to take care of them?? You will learn the basics of wound care and get to treat a simulated wound yourself! Come see what the field of athletic training is all about!



**Lab Leader: Karen Garrison**

<http://www.nata.org/brochures-and-other-informational-materials>

<http://www.nata.org/athletic-training>

[http://www.abpischools.org.uk/page/modules/skin/index.cfm?coSiteNavigation\\_allTopic=1](http://www.abpischools.org.uk/page/modules/skin/index.cfm?coSiteNavigation_allTopic=1)

### Lab 8: Safe Solar Observing and Documenting



A variety of safe methods for solar observing will be used to see features on the visible solar atmosphere. Observations will be documented by sketching and writing a short report. Safety will be stressed in this lab. If weather does not permit solar observing, a comet model will be made and discussion of how comets are made, where they originate, and what happens when it passes through the atmosphere. Students will participate in making the model.

**Lab Leader: Brenda Culbertson**

**Lab 9: What's In That Dirty Mouth?**

You probably know that the mouths of cats and dogs have lots of bacteria living inside of them. What you may or may not know is that human mouths also contain a wide variety of microorganisms. Are you curious about what kinds of bacteria you can find in your mouth? Come search your own saliva samples for bacteria that live inside the human mouth and discuss some of the positive and negative impacts these microbes have on your lives.

**Lab Leader: Susan Bjerke**

**Lab 10: What Lies Beneath?**

Everyone enjoys spending time at the lake. Have you ever looked out over the water and wondered what goes on beneath the lake surface? There are a lot of things going on down there! The unique physical properties of water allow lakes to separate into distinct layers during warm summer months. This process is called thermal stratification. During this laboratory you will construct a model lake, create thermally distinct layers, explore how storms affect these layers, and discuss the influence these layers have on water quality and aquatic organisms.



**Lab Leader: Jennifer Graham**

<http://faculty.gvsu.edu/videticp/stratification.htm>

[http://waterontheweb.org/under/lakeecology/05\\_stratification.html](http://waterontheweb.org/under/lakeecology/05_stratification.html)

**Lab 11: How to Save a Life: The Science Behind CPR**

You have probably seen CPR performed on TV lots of times, but do you know how it works? What does C.P.R. even stand for anyway????? This lab will reveal the science behind the action of CPR or CardioPulmonary Resuscitation. Students will have a chance to perform life-saving procedures on Simulation Manikins as well as learn how to save a “High Fidelity” Manikin that blinks, breaths, and even talks!

**Lab Leader: Amy White**

<http://www.heart.org>

<http://www.redcross.org>

<http://www.discovernursing.com>

**Lab 12: Create Your Own Thunderstorm!**

Thunderstorms are common weather phenomena we see each year in Kansas. Have you ever wondered why they form? What causes lightning or rainfall in thunderstorms? In this lab, we will perform a series of experiments to demonstrate the processes involved in the formation of intense weather events. What factors are involved to create rainfall? What is the science behind lightning and fog? If you have ever wanted to learn about the ever-changing weather in Kansas while getting your hands wet, this lab is for you!

**Lab Leaders: Jenifer Bowen, Audra Hennecke, Pamela Murray**



<https://eo.ucar.edu/webweather/activities.html>

<http://www.weatherwizkids.com/career-weather-jobs.htm>

**Lab 13: How to Survive... The Kansas Zombie Apocalypse**

In this computer lab we will use spatial analysis to predict zombie movement in your community. Learn how a GIS Analyst would assemble data sets from the web, how these data sets are imported into a map, and the tools used to generate new maps. We will then discuss your mental map of your community and strategies to increase your spatial awareness.

**Lab Leader: Jenny Lanning-Rush**



<http://www.arcgis.com/home/gallery.html>  
<http://viewer.nationalmap.gov/viewer/>  
<http://www.nationalatlas.gov/>

**Lab 14: Caves and Sinkholes: How and why they form**

For this lesson, students will learn about the types of rocks that form caves and why, and how caves lead to sinkholes!

**Lab Leader: Blair Schneider**

**Lab 15: A Picture is Worth 1,000 Words**

Create a video interview or news story covering a water related science topic. The key to any great scientist is having the ability to share your findings with others. With today's ability to share information almost immediately, via Facebook, Instagram, Twitter, etc. it's important to be able to accurately assess a situation and successfully report on it. Effective Communication is a crucial component in any area of science. So bring your creativity and let's get rolling!

**Lab Leaders: Bobbi Wendt, Susan Metzger**

**Lab 16: Have a Heart (and Lungs)**

This lab will focus on normal anatomy of the hearts & lungs of animals. Normal landmarks will be shown, then each participant will have the opportunity to dissect a heart & lung set. If abnormal gross pathology is present it will be discussed. Heart chambers & valves will be seen. Blood flow will be illustrated. Two mixed / large animal veterinarians and an animal technician will guide you. Both veterinarians practiced for over 10 years before changing paths into regulatory medicine.

**Lab Leaders: Dr. LewAnn Schneider, Dr. Becky Pfannenstiel, Danielle LeDoux**

**Lab 17: Go With the Flow**

We all need water to survive. Where on earth is water stored? How are groundwater, surface water and drinking water connected? This lab explores the connection using observation and hands-on activities. We'll watch surface runoff and water and contaminant movement through aquifers, using a physical model. We'll compare wetlands and water processing plants as ways to "filter" earth's water. We will also build our own aquifers to explore water movement through different earth materials. Where has your tap water been and where is it going? Come and find out!



**Lab Leader: Christa Torrens**

<http://www.epa.gov/owow/monitoring/nationswaters/waters2.pdf>  
<http://water.epa.gov/lawsregs/guidance/wetlands/readlist.cfm>  
<http://www.uwex.edu/erc/gwah/pdf-files/actionguide/action.pdf>  
<http://www.ngwa.org/Professional-Resources/industry careers/Pages/default.aspx>  
<http://water.epa.gov/drink/index.cfm>  
<http://lawrenceks.org/utilities/wwtreatment>