



The 11th annual **Wisconsin Heights Summer Science Camp** will be held **Monday June 11- Friday June 15, 2018** at the Wisconsin Heights High School.

Camp theme: How do we know what we know in science? How do scientists discover new things?

The Overall Camp Goal: Students participating in the Wisconsin Heights Summer Science Camp will do authentic science as they design, carry out, and communicate their own research project in teams of 2-4 students. In doing so, they will be able to answer the two "camp theme" questions above.

This camp includes instructors from the UW-Madison Biology Core Curriculum (Biocore), Biocore Outreach Ambassadors, and Biochemistry Department. The Biocore Outreach Ambassadors have been working with Wisconsin Heights teachers and students since 2006, and have run the After School Science Club at the MOO since 2010. To find out more about the Biocore program, please visit our website <http://biocore.wisc.edu/>

The UW-Madison camp instructors volunteer their time during camp week, but we still have travel and equipment/supply expenses. UW-Madison also requires summer camp instructors to have a background check completed, to ensure the safety of all of our campers. To help cover these costs, registration is \$70/student, but families with 2 or more students will pay \$65/student. T-shirts for the camp are \$12/shirt.

Learning Goals

Students participating in Summer Science Camp will:

1. become familiar with the kinds of questions scientists investigate
2. learn a few common data collection methods in a specific research area
3. work with 1 - 3 teammates to pose a testable question and/or hypothesis
4. design an experiment to address their hypothesis/question
5. carry out their experiment, collect data, and then organize, analyze and graph their results
6. use their data as evidence to make logical conclusions about their hypothesis/original question
7. communicate their findings to instructors, family, friends, and peers.

Enclosed, you will find:

- Research Topic Descriptions
- Camp Agenda and Supply Lists
- ***Camp Registration Form**
- ***Release Forms for Media/ Emergency Treatment**
- ***UW-Madison Summer Youth Camp Health History Record* (separate pdf file)**

*Please return via snail mail:

1. Registration form, with **your child's paragraph(s)**
2. Media/Emergency treatment release forms
3. Summer Youth Camp Health History Record
4. A check made out to "University of Wisconsin-Madison" and in the Memo line write "Biocore Summer Science Camp", by

Friday May 25, 2018

to: Michelle Harris (Biocore)
307 Noland Hall
250 N. Mills St.
Madison, WI 53706

If you have any questions please email Michelle Harris (maharris@wisc.edu) or call (608) 262-7363.

Research Topic Descriptions

1. Human Anatomy & Physiology

How do we study how the human body works? How can we measure how strong muscles are? How can computers help us keep track of how fast our hearts beat when we run compared to when we are sitting down? How fast can people react to something they see or hear? In this section, we will investigate how the human body is built (anatomy) and how it works (physiology).

Anatomy & Physiology campers will:

- spend time outside running, jumping, kicking and throwing to analyze movements of the human body.
- discover the basic principles of anatomy and physiology by studying themselves.
- learn how to measure physiological variables like heart rate, breathing rate, muscle force, and reaction time.
- develop your own research project to answer a question you have about human anatomy & physiology.

Come prepared to spend time outside. We're going to have some fun!

2. Stream Ecology

Stream ecology is the study of all the living and non-living components of stream systems and how those elements interact with each other. Think of anything that you might find in a stream; a trout, a crayfish, a rock, a bug, maybe even an old tire. All of these things influence each other and are affected by one another.

The Stream Team will:

- “dive” into discovery by putting on waders and getting into the Black Earth Creek ecosystem.
- learn how water movement, fish, invertebrates, vegetation, bacteria, water chemistry, and pollution affect the creek.
- explore the creek from the bottom up and will have a chance to develop their own study to investigate an aspect of the creek that interests them.

Past research projects have investigated if plants affect presence of aquatic invertebrates, if substrate influences number of crayfish present, and if there is a correlation between stream flow, water temperature, and amount of dissolved oxygen in the water.

3. Birds of Wisconsin (Ornithology)

Have you ever wondered what kind of bird is sitting on your bird feeder or which bird is making those sounds in the morning? Have you ever wondered what kind of birds live in Wisconsin? Ornithology is a branch of Biology that concerns the study of birds. In this section we will spend time outside in different habitats observing and identifying birds. We will also spend time learning about bird behavior, physiology, and ecology. In this section students will:

- learn about foraging habits, migration patterns, and reproductive behavior of several bird species
- understand the basics of birding and the importance of maintaining biodiversity
- identify common Wisconsin birds by sight and sound
- explore multiple habitats and discover which birds live there

During camp, we'll head outside with our binoculars to find birds in nearby Wisconsin Heights farmland, prairies, and forests. We'll ask questions and design experiments to answer some of our questions about birds!

4. Wisconsin Soils and Microbiology

Do you ever wonder what the soil is made of? Could there be something hiding in the soil that we usually can't see? In this section of the Summer Science Camp, we will take a tour of the microscopic world of the soil around our school. You will get a chance to learn about the components of the soil and some tiny critters that live inside the soil! You will learn to use scientific equipment to learn about the soil like a scientist - microscopes, CO₂ meters and more! You will also get to develop your own project about the soil and learn about ways to ask and answer a testable question.

Please keep this page for your own information.

We will meet in the Wisconsin Heights Middle School Step Room each morning at 8:30am.

Camp Agenda

Day	Monday (6/11)	Tuesday (6/12)	Wednesday (6/13)	Thursday* (6/14)	Friday** (6/15)
Time	8:30am-12pm	8:30am-12pm	8:30am-12pm	8:30- 3:00pm*	8:30am- 12:30pm**
Theme	<i>How do we know what we know?</i>	<i>What would you like to investigate?</i>	<i>Data collection</i>	<i>Conclusions based on evidence</i>	<i>Sharing what we learned</i>
Activities	<ul style="list-style-type: none"> • meet instructors and group members • camp overview and site visits • brainstorm questions you'd like to investigate 	<ul style="list-style-type: none"> • exploring your research interests • work with groups to identify your research focus • use a computer to find information 	<ul style="list-style-type: none"> • think about the best way to investigate your questions and make a plan • collect data 	<ul style="list-style-type: none"> • finish collecting data • inspect data to find patterns; find more information • make graphs to explain your results • construct a group poster 	<ul style="list-style-type: none"> • present your research findings to friends and family using a poster • celebrate your success at the all-camp party!

* **Note:** On Thursday June 14, the students will work on their presentation posters. We ask that students stay later on Thursday (until 3:00pm) to complete their work. **Please pack a sack lunch for your child on Thursday.**

**Family and friends are invited to attend the poster presentations on Friday, June 15 from 8:30am - 12:30pm. This is a great opportunity to see what your child has accomplished at science camp!

Please have your child bring the following supplies to camp each day:

- ☆ **SNACK!!! (individual)**
- ☆ notebook/pencil
- ☆ sunscreen
- ☆ hat

- ☆ water bottle
- ☆ bug spray
- ☆ a good attitude!

Registration Form - Wisconsin Heights Summer Science Camp

Camp hours: 8:30am – Noon (M, Tu, W, F) and 8:30am – 3:00pm (Thursday)
June 11 – 15, 2018

Student name _____ Parent/guardian name _____

Address _____

Telephone number(s): cell _____ work _____

Email address _____ Grade your child will enter in **fall 2018** _____

How did you hear about our science camp? _____

Item	Rate	Number	T-Shirt size(s) (circle)	Subtotal
Registration	\$70 / student (\$65/student if 2 or more)			
T-Shirt	\$12 / shirt		Child S M L XL Adult S M L XL	

Total Enclosed: _____

Please address all checks to the **“University of Wisconsin-Madison”** and return with this application form.

If your child participated in previous Summer Science Camps, what topic area(s) did they do research in?

2012 Camp - _____

2013 Camp - _____

2014 Camp - _____

2015 Camp - _____

2016 Camp - _____

2017 Camp - _____

Please rank your child’s interest in our research topic areas (1 = most favorite to 4= least favorite):

____ Human Anatomy & Physiology ____ Stream Ecology ____ Birds ____ Wisconsin Soils

Please attach a brief paragraph or two (written by your child) that describes why they are interested in the topics ranked “1” and “2.”

