



2017 Open House visitors prepare for a nature walk.

# Mountain Lake Echoes

UNIVERSITY of VIRGINIA

Produced by the University of Virginia's Mountain Lake Biological Station [mlbs.org](http://mlbs.org)



## VCU Comparative Physiology Immersion Experience Pilot

by Michael L'Heureux, MD, Virginia Commonwealth University



Michael L'Heureux, MD  
Chief Medical Resident  
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The Virginia Commonwealth University's Immersion Experience in Comparative Physiology (IECP) has been under development for the past few years and, in the fall of 2017, we had our first successful pilot at Mountain Lake Biological Station. The program was developed as a joint venture between VCU's Chair of the Department of Internal Medicine and the Internal Medicine Residency Program Director with a mission of reconnecting residents with basic physiology and stimulating intellectual curiosity. It was modeled after a similar program run by Beth Israel Deaconess Medical Center at a lab in Bar Harbor, Maine.

As modern medicine makes amazing advances, the amount of material that trainees need to learn grows. In order to accommodate this increased information, some things have taken a smaller role. Trainees spend minimal, if any, time in the lab learning physiology concepts that relate to the pathophysiology of diseases they encounter every day.

Our IECP course takes residents away from their clinical duties to immerse them in a course where they perform scientific experiments to reacquaint them with basic physiology through experiments on themselves and other organisms. This approach promotes a better understanding of the human disease processes and encourages mechanistic thinking and intellectual curiosity that residents can apply in their practice for the betterment of their patient care.

Mountain Lake Biological Station has proven to be the perfect venue for this endeavor because it allows the residents and faculty to interact in an academical community environment, far removed from the pressures of the hospital. The idyllic location of the Station is a welcome reprieve from the rigors of clinical practice and allows residents and faculty to fully immerse themselves in their scientific inquiry.



In This Issue Spring 2018, Vol. 18

From the Director	2
Vertebrate Collection Rehab	2
News & Notes	2
ArtLab 2018	3
Wildlife Disease Ecology	3
2018 Summer Courses	4

### Upcoming Events

**Dining Hall Open**  
May 20 - August 4

**REU Program**  
May 28 - August 3

**Summer 2018 Courses**  
Session I: May 21 - Jun 15 (4 wk)  
Session I: May 28 - Jun 15 (3 wk)  
Session II: Jun 18 - Jul 6 (3 wk)  
Session III: Jul 16 - Aug 3 (3 wk)

**Summer Seminar Series**  
Lewis Hall Auditorium  
Tuesdays and Thursdays  
Begins May 29, 8 p.m.

**Walton Lecture**  
Regina Baucom  
University of Michigan Department of Ecology and Evolutionary Biology  
June 15

### July 4th Festivities

**ArtLab**  
July 15 - 28

**ArtLab Lecture**  
Nancy Blum  
July 17

**Open House**  
July 21

**Grant Writing Workshop**  
July 29 - August 3

**SEPEEG Conference**  
October 5 - 7

View our [web calendar](#) for up-to-date announcements.

## From the Director

At least in Virginia, it felt like spring would never arrive this year. The cold and snow seemed to abate just long enough to tease us into making plans, only to come back harder. My lab had to put on hold several planned trips to do spring work at the Station when storm fronts rolled through and dumped snow, when only a few days before it was t-shirt weather. Facilities Management experienced the same unpredictability of spring on the mountain and had to delay their trenching project to install new electrical conduit until just last week.

The delayed spring forced everything to happen at once (or least gave some of us excuses). The usual rhythm of finishing the semester and heading up the mountain to prep for classes and research has become a running stumble toward the starting line as a busy season gives way to a busier one. Even the trees and grasses in Charlottesville held out so long they're exploding now in a sudden fog of pollen. Students that watched me as two of our UVA grad students gave their final public PhD presentations this week thought I was getting emotional, but I was really only suffering from allergies (really). By the time it ends here, we'll get to enjoy the second wave of spring on the mountain.

The summer of 2018 at MLBS is shaping up to be one of our busiest in years. With the exception of a single spot, every class is full, the REU program is bigger than usual, and we're playing a multidimensional game of Tetris trying to find space for all of the different lab groups, researchers, and artists that will be working at the Station this summer. In addition to our regular activities, we'll be hosting a new grant-writing workshop in July for junior scientists to hone their pitches and skills, and a visiting course from the medical school at VCU that offers a different clientele a chance to experience the Station.

Just another week or so of wrapping up duties and loose ends, and I'll be able to blast off to the Station and into the Beetlecrew for another season of science and fun. If you can find the time, come and visit us on the mountain.



Butch Brodie

## Vertebrate Collection Rehab



David McLeod  
Assistant Professor of Biology  
James Madison University

David McLeod spent two weeks at the Station last summer curating the herpetological collection. David, a skilled museum scientist and collections curator, re-jarred specimens, instituted a standard labeling system for the entire vertebrate collection, and photographed all the amphibians and reptiles.

Back on Grounds, undergraduates Desmond Murrell, Pitchesinee Veerakajorn, and Anna Haikl entered specimen data into an online database accessible through iDigBio. The entire MLBS herp collection is now online at [mlbs.virginia.edu/collections](http://mlbs.virginia.edu/collections).

David will be returning this summer to continue this project with the help of REU Daisy Horr from Trinity University.



## News & Notes

### Remembering George W. Byers



George William Byers  
Retired Professor of Entomology  
University of Kansas  
May 16, 1923 - January 1, 2018

A member of the Mountain Lake family was lost in January 2018 when entomology instructor George Byers passed away.

Henry Wilbur remembers George this way: "George was a beloved entomology teacher every other summer for decades. His kindness and complete attention to students instilled devotion and extreme loyalty among his students. My favorite anecdote is how a UVA varsity wrestler who worked hard to hone his image as a tough gut, not to be approached, fell under George's spell, made a collection of big, vicious wasps for the class and begged me to let him return the following summer as the station's librarian in order to continue his collecting."

And from Jim Murray: "For so many years he was a stalwart member of our staff at Mountain Lake. It was not only his encyclopedic knowledge of the insect fauna of the area, but he was also a dedicated mentor for his students and a contributor to the community life."

### New Equipment at Station

This winter we installed a new full-size autoclave and a bio-safety cabinet in Wilbur Lab. We also have new teaching scopes in Lewis Hall.

### Support MLBS

You can support the programs at Mountain Lake Biological Station by donating online. All donations are tax-deductible. [Click to give.](#)

## ArtLab 2018

This year's ArtLab Lucile Walton Fellow will be Nancy Blum. Blum works with a wide variety of media and is inspired by botanical and other natural imagery. We look forward to her interpretations of the environment we know so well. You can read more about Nancy on her website at [nancyblum.com](http://nancyblum.com).

Six other nationally recruited Artists-in-Residence and six UVA art students will join Blum at MLBS July 15-28. ArtLab work will be featured at the Station Open House July 21<sup>st</sup>.

### Statement from the Artist

My large-scale works on paper, rendered in ink, colored pencil, gouache and graphite, portray a fantastic realm in which flowers own the space. I use a variety of 16th and 17th-century botanical images,

from Chinese plum blossoms to German botanicals, as starting points for each drawing. Rather than alluding to an actual landscape, I instead combine species of plants in the same drawing that would not customarily exist together in nature. Obsessive handwork creates intricate layers of visual information to be discovered over time and, in this way, the works become a seductive meditation for the viewer.



ink, colored pencil, gouache & graphite on paper, 4' x 10' (hl), 2011  
Harbinger

## Wildlife Disease Course Returns to MLBS

by Sonia Altizer (University of Georgia), Amy Pedersen (University of Edinburgh), and Dana Hawley (Virginia Tech)

The return of spring means leaf-covered trees, singing birds, and the arrival of migratory butterflies. As the Appalachian forests surrounding Mountain Lake Biological Station burst to visible life, beneath the surface are thousands of smaller organisms that make their living by stealing energy from their hosts.

Parasites and pathogens have fascinating life cycles, are incredibly diverse, and have profound effects on wildlife populations. For nearly 20 years, students at the Station have explored the ecology of animal-pathogen interactions through the Wildlife Disease Ecology course, to be offered again this summer. Altizer, Pedersen, and Hawley have taught this course several times since 2000 and are experts on studying the spread and impacts of pathogens infecting birds, butterflies, and mice.

During the 3-week course, students will learn a variety of field and laboratory techniques, including observation of animal

capture and handling, sample collection, parasite identification, and immune assays. This year, students will have the opportunity to complete labs involving salamanders, mice, birds, beetles, and bats. Students will also gain experience with data analysis and computational methods such as simulation modeling for understanding infectious disease processes.

Case studies throughout the course will emphasize the importance of parasites in wildlife conservation and management. For example, a fungal pathogen recently caused the local extinction of most bat species once common around the Station. How can we manage parasites and pathogens that threaten hosts with extinction? Overall, we hope that students in the course will take away a fascination with the biology and diversity of parasites and pathogens, as well as an appreciation for the many ways in which these organisms impact the ecology and evolution of their hosts.



# 2018 Summer Courses 3 Credits



## Summer Session I

### Field Biology of Fishes

May 21-June 15 (4 weeks)

*David Neely, Tennessee Aquarium*

MLBS sits on the Eastern Continental Divide providing an incredible diversity of freshwater habitats. Proficiency in ichthyology will be developed through field trips and lab work. Themes include: fish identification; patterns and drivers of diversity; interactions on individual, population, community, and ecosystem levels; evolution; and influences of human activities. Students will design and conduct a research project and present at a class symposium.

### Field Herpetology

May 28-June 15 (3 weeks)

*Christian Cox, Georgia Southern University*

We will focus on the ecology and evolution of reptiles and amphibians, leveraging their diversity in the southeastern U.S. In both the field and laboratory, we will study 1) evolutionary relationships among reptiles and amphibians, 2) key evolutionary innovations that characterize each major lineage, 3) reptile and amphibian systems in ecological and evolutionary research, and 4) location and identification of reptiles and amphibians.



## Summer Session II

### Wildlife Disease Ecology

June 18-July 6 (3 weeks)

*Sonia Altizer, University of Georgia*

*Amy Pedersen, University of Edinburgh*

*Dana Hawley, Virginia Tech*

This course focuses on the ecology and evolution of infectious diseases in wild animal populations. Topics include the population biology of parasites and pathogens, host immune defenses and pathogen virulence, and wildlife conservation and disease. Students will gain experience with quantitative methods and field and laboratory techniques, including parasite identification and handling of insects, birds, amphibians, and small mammals.



## Summer Session III

### Stream Ecology

July 16-August 3 (3 weeks)

*Christine May, James Madison University*

*Scott Eaton, James Madison University*

Students will integrate principles of stream and watershed ecology to gain insight into stream-dwelling organisms and their environments. Participants will be introduced to the physical, chemical, and biological organization of aquatic ecosystems, current theories in stream and watershed ecology, and lab and field methods for conducting stream research, and will participate in field/lab explorations and student-led discussions.



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