

FRIDAY

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Implementing *Vision and Change* in the Biology Classroom

2013 NABT Faculty Professional Development Summit

10:30am – 3:45pm • Regency VI

This year's summit showcases innovative teaching practices and new curricula that promote the ideals of Vision and Change.

Summit moderated by: **Dr. Jacqueline McLaughlin**, The Pennsylvania State University
Dr. Anneke Metz, Southern Illinois University Carbondale

PROFESSIONAL DEVELOPMENT SUMMIT

10:30am – 10:45am	Symposium Introduction: Moving Toward Implementation
10:45 am – 11:15am	Revamping the Biology Curriculum: Meeting the Challenges Elizabeth Cowles, Eastern Connecticut State University
11:15am – 11:45am	Soaring with IBIS: Implementing a New Biology Curriculum Tarren Shaw, Oklahoma State University Suann Yang, Presbyterian College
11:45am – Noon	Introduction of Poster Session
Noon – 1:00pm	Implementing <i>Vision and Change</i> Poster Presentations ~ Lunch Break Margaret Franzen ~ Connecting Researchers, Educators and Students Kelly Gull ~ Biology Scholars (Faculty Development) Program at ASM Deborah Donovan ~ Activities for Small and Large Biology Classes Erin Baumgartner ~ Vision and Population Change: Jar of Pond Bernadette Connors ~ Inquiry Laboratory with Null Mutants of <i>S. cerevisiae</i>
1:00pm – 1:30pm	Going Beyond the Mean: Statistics in the High School and College Science Classrooms Paul K. Strode, Fairview High School
1:30pm – 2:00pm	Initiating Student Discussions of Primary Literature in Classroom Settings Justin Knight, Hsiangyu Hu & Quincy Rosemarie, University of Minnesota
2:00pm – 2:30pm	Transforming an Undergraduate Biology Laboratory Experience into a Research Environment Melissa Coyle & Jacqueline McLaughlin, The Pennsylvania State University
2:30pm – 3:00pm	Integrating Student-led Research in an Introductory Biology Laboratory Course at a 2-Year College Jean Maines, Tarrant County College
3:00pm – 3:15pm	Wrap-up and Stretch Break
3:15pm – 3:45pm	2013 NABT Four-Year Section Biology Teaching Award Winner Grant E. Gardner, Asst. Professor of Mathematics and Science Education Middle Tennessee State University

7:00am – 8:15am


BioClub Breakfast

Regency VI • Special Event

It's been another great year for the NABT BioClub, with new clubs being added at high schools and community colleges across the country. Both *current* and *future* BioClub advisors are invited to participate in this informational meeting and networking function. Join the club (BioClub that is)!

Sponsored by **CAROLINA**
www.carolina.com

Four-Year College & University Section Breakfast Meeting

 Regency VII • Special Event
• 4C • \$45

You are invited to join the Four-Year College & University Section for their annual breakfast and business meeting. This event will include a special presentation of the *Four-Year College & University Biology Research in Teaching* and *Four-Year College & University Biology Teaching Awards*. The winners of the *Student Research Award* and *Student Travel Award* will also be announced.

Two-Year College Section Breakfast Meeting

University • Special Event • 2C

Wake up early, grab your breakfast, and head to the Two-Year College Section business meeting. Initiatives impacting instruction at the two-year college will be discussed, and all two-year and community college educators are invited to attend.

8:30am – 9:30am

GENERAL SESSION

Ricki Lewis, Ph.D.

Bio appears on page 8.

Gene Therapy: A Forever Fix?

Centennial III & IV
• Special Speaker

On a bright fall day in 2008, 8-year-old Corey Haas walked up to the Philadelphia zoo with his parents. He heard kids chattering about the hot air balloon above, so he looked up, and screamed. It was the first time he'd seen the sun. Four days earlier, doctors had sent gene-bearing viruses into Corey's left eye to treat his hereditary blindness, and now the sun was unbearably bright.

Corey's suddenly restored vision marked a renaissance in gene therapy, a biotechnology sidelined nine years earlier when an 18-year-old died from it. The road to gene therapy has been long and winding, with the first product approved in Europe, to treat a rare metabolic disorder, a year ago. But gene therapy isn't only for rare conditions. Of the 1850 clinical trials that are completed, ongoing, or about to start, in 31 nations, cancers account for 64.4%, single-gene disorders 8.7%, cardiovascular disease 8.4%, and infectious disease 8%.

Science writer and geneticist Ricki Lewis will discuss Corey's inspiring story against the backdrop of other children treated since the field was born in 1990, and those looking ahead to future gene therapy, a saga that celebrates science, medicine, parent activism, families, model organisms, and pioneering researchers, many of them women. It is an ongoing story of science, innovation, and hope.

Dr. Lewis will be available to sign copies of her book, *The Forever Fix: Gene Therapy and the Boy Who Saved It*

9:30am – 10:15am

Exhibit Hall Coffee Break

Grand Hall • Special Event

Why not stop by the Exhibit Hall for a quick "pick me up" before you embark on another day of great sessions?

Sponsored by **BIO-RAD**

10:30am – 3:45pm

NABT Faculty Professional Development Summit: Implementing *Vision and Change* in the Biology Classroom

Regency VI • Special Program • 2C 4C

This year's Faculty Summit showcases innovative teaching practices and new curricula that promote the ideals of the AAAS *Vision and Change* report. This symposium features a combination of presentations and posters, giving you the flexibility to attend all day or only for a few sessions. If you teach at the undergraduate level, this is an event you don't want to miss.

See page 46 for complete details.

10:30am – 11:45am

INVITED SPEAKER

Gordon Giesbrecht, Ph.D.

Bio appears on page 10.

Goal Setting: Lessons Learned from 100 Winter Nights on Lake Winnipeg

Regency VII • Special Speaker

In a 20-year quest to become the first North American to do a solo expedition to the North Pole, I learned several lessons on four expeditions in record breaking cold temperatures on Lake Winnipeg: dare to dream, prepare, start, work hard and keep going. Following these principles will usually lead to significant accomplishments, even if the original high goal isn't met.

Sponsored by
The American Physiological Society

highlighted speakers

Read their bios on pages 8-10.

abbrev. key

- GA: General Audience
- E: Elementary
- JH: Middle/Jr. High School
- HS: High School
- 2C: Two-Year College
- 4C: Four-Year College

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*continued***#ES27 High Definition Digital Imaging for the Microscopy Classroom**

Chicago A & B • Exhibitor Session
• Hands-on Workshop (75 min)
• Instructional Strategies/
Technologies • 2C 4C GA

Viewing, capturing, and sharing high quality images from a microscope is a must for an interactive learning environment. This session will allow you to experience the latest in High Definition Digital Imaging Technology for the microscopy classroom.

Sy Stevens (sy.stevens@leica-microsystems.com), Leica Microsystems, Buffalo Grove, IL

#ES25 Data Collection on your iPad® with SPARKvue HD

Hanover A • Exhibitor Session
• Hands-on Workshop (75 min)
• Instructional Strategies/
Technologies • GA

See how you can use iPads™ in your science lab with PASCO sensors and SPARKvue® HD. Offering a full suite of display and analytical tools, reflection prompts, journaling, and more – plus full support of PASCO's growing collection of SPARKlabs®.

Mike Blasberg (sales@pasco.com), PASCO scientific, Roseville, CA

#ES26 Engaging Students Effectively: The BIOZONE Solution

Hanover B • Exhibitor Session
• Demonstration (75 min)
• General Biology • HS

BIOZONE's unique presentation of content provides an effective solution for student engagement. Find out how and why teachers are using BIOZONE's resources to improve outcomes for their students. FREE product samples provided to every attendee.

Richard Allan (richard@biozone.co.nz), BIZONE International, Hamilton, Waikato, NZ

#477 HHMI's The Making of the Fittest: Evolving Switches, Evolving Bodies Free Classroom Resources

Hanover C • Hands-on Workshop (75 min) • Evolution • HS

Learn how you can teach about genes and gene switches with a visually-stunning short film on the evolution of the stickleback fish, and free classroom-ready resources, including an exciting virtual laboratory in which students collect their own data.

Ann Brokaw, Rocky River High School, Rocky River, OH

#388 Addressing Student Alternate Conceptions of Darwin's Model

Hanover D (Session I) • Paper (30 min) • Evolution • 2C 4C GA

This paper presents ways to help students discuss how examples of human evolution (multiple drug resistant tuberculosis and sickle cell anemia) relate to each item in Darwin's Model, thereby addressing student misconceptions about natural selection.

Kathy Gallucci (gallucci@elon.edu), Elon University, Elon, NC

#368 Using Primary Literature to Teach Evolution

Hanover D (Session II) • Paper (30 min) • Evolution • HS 2C

Learn about strategies for using primary literature to teach evolution in high school and community college classes. We will discuss our approach and experiences and provide guidelines to help you implement the strategy in your classroom.

Jaime Sabel, University of Iowa, Iowa City, IA and Barry Greenwald, Harding High School, St. Paul, MN

#473 Society for Study of Evolution Presents: The Evolution of Biological Complexity: A New Lab Exploring the Origin of Multicellularity

Hanover E • Hands-on Workshop (75 min) • Evolution • 2C 4C GA

Through simple and safe laboratory methods appropriate for high school

and undergraduate students, we show how single-cell yeast can evolve into snowflake-shaped clusters that continue to evolve as multicellular individuals. Free yeast strains and curricula.

William Ratcliff (william.ratcliff@biology.gatech.edu), Georgia Tech, Atlanta, GA, Tami Limberg (tlimberg@greatriver.school.org), Great River High School, St. Paul, MN and Nicholas Beerman, (nybeermann@gmail.com), MacDowell Montessori, Milwaukee, WI

#365 Karyotyping and Beyond

Hanover F & G • Paper (75 min)
• Genetics • MS HS

Walk through the progression of detection methods for genetic disorders over the past thirty years. Begin by exploring karyotyping and its limitations, and progress forward towards modern day applications of genome sequencing.

Neil Lamb, Jennifer Carden and Madelene Loftin, HudsonAlpha Institute for Biotechnology, Huntsville, AL

#422 Food For Thought: A Modeling Unit Investigating Connections Between the Endocrine and Nervous Systems, Metabolism, and Health

Baker • Hands-on Workshop (75 min) • General Biology • HS

Come explore a full unit of lessons that include hands-on activities addressing core ideas addressed in the NGSS connecting to energy metabolism, neuroendocrine function, and homeostasis. Access to free NIH SEPA funded curriculum materials included.

Tommy Wolfe (wolfe5@illinois.edu), Claire Scavuzzo (cscavuz2@gmail.com), Hillary Lauren, (hgzg.lauren@gmail.com) and Barbara Hug (bhug@illinois.edu), Project NEURON, Champaign, IL

#400 A Year Into the AP Biology Redesign

Courtland • Hands-on Workshop (75 min) • AP Biology • HS

Join us to discuss the first year of implementing the AP Biology redesign. We will share a variety of online resources

Join us for the 2013 NESCent/BEACON Evolution Symposium

Wallace, Islands, and Biogeography 100 Years Later

Friday, Nov 22, 2013
Hyatt Regency Atlanta
Room: The Learning
Center



The Wallace Line (shown in red) delineates the fauna of southeast Asia and Australia. Wouldn't he have loved to see this satellite photo?

The symposium will be followed by a teacher workshop on Saturday, November 23, from 11:15 am to 12:30 pm in Hanover D, which will provide participants with resources, ideas and strategies to introduce topics such as biogeography, natural selection and speciation in their classroom.

Few scientists are as important or misunderstood as Alfred Russel Wallace, the British naturalist and contemporary of Charles Darwin. 2013 marks the 100th anniversary of Wallace's death, and this year's NESCent/BEACON Evolution Symposium examines his historical and scientific legacies and his often-misunderstood relationship with Darwin, as well as two examples of exciting, contemporary work in biogeography, the field he helped create.

12:30 PM Welcome/Introduction

12:45 PM The Force of Admiration: Alfred Russel Wallace on the Evolutionary Trail

James Costa (Professor of Biology, Western Carolina University; Director, Highlands Biological Station) Trace Wallace's "evolutionary trail" from his "species notebook," the most important of his field notebooks during his crucial years in southeast Asia.

1:30 PM Seeing the Island through the Trees: Reconstructing the Biogeography of Madagascar's Mammals in the Absence of a Fossil Record

Anne Yoder (Professor of Biology and Evolutionary Anthropology, Duke University; Director of Duke Lemur Center) This talk focuses on the mammals of Madagascar, especially its iconic lemurs, asking when and by what means they colonized the island.

2:30 PM Evolutionary Biogeography and Conservation on a Rapidly Changing Planet: Building on Wallace's Vision

Ana Carnaval (Assistant Professor of Biology, City College of New York) How are the tools of evolutionary biogeography used to model biological responses to former climate change in the coastal forests of Brazil?

3:15 PM Wallace and the Limits of Darwin's Natural Selection

Will Kimler (Associate Professor of History, North Carolina State University) Explore the distinctive experiences of Wallace and Darwin as naturalists, and the relationship between the two men in the 1860s-70s.

4:00 PM Closing Comments

Brian Wiegmann (NESCent Assoc. Director and Professor of Entomology, North Carolina State University)



10:30am – 11:45am

continued

that are currently free that helped teachers and students transition to a more inquiry-based curriculum.

Carol Leibl (cleibl@nms.org), National Math and Science Initiative, Dallas, TX and Robert Summers, (robert@aplusala.org), A+ College Ready, North Birmingham, AL

#412 Keep Science in the Science Classroom, and Non-Science Out

Dunwoody • Hands-on Workshop (75 min) • Evolution • E MS HS

Controversy in the classroom? What can you do when evolution, climate change, or other topics are under attack by students, parents, or even your colleagues? The National Center for Science Education (NCSE) and SETI Institute have resources for you.

Eric Meikle (meikle@ncse.com) and Minda Berbeco (berbeco@ncse.com), National Center for Science Education, Oakland, CA and Pamela Harman (pharman@seti.org), SETI Institute, Mountain View, CA

#418 Using College Labs to Help Future Teachers Learn to Teach

Edgewood • Paper (75 min)
• Instructional Strategies/
Technologies • 2C 4C GA

Come learn how we use inquiry-based, college-level introductory biology laboratories as a low-threat training ground for pre-service teachers enrolled in their science methods course.

Julie Angle (julie.angle@okstate.edu) and Donald French (dfrench@okstate.edu), Oklahoma State University, Stillwater, OK

#288 Team-based Learning for Environmental Science

Fairlie • Hands-on Workshop (75 min) • Environment/Ecology • HS 2C 4C

Participants will “be the class” as the session leader demonstrates guiding students through student-centered learning activities and instructor-led discussion

to grasp basic environmental concepts based on real world case studies.

Susan Karr (sukarr@cn.edu), Carson-Newman University, Jefferson City, TN

#374 Measuring Student Proficiency

Greenbriar • Hands-on Workshop (75 min) • General Biology • MS HS

Join us to discover ways to integrate science practices into your curriculum, track student mastery throughout a course of study, and increase student engagement and ownership over learning. Planning templates and assessment techniques will be shared.

Aimee Wagner (aimee.wagner@gmail.com), West Charlotte High School, Charlotte, NC and Cole Entress (cole.entress@gmail.com), Lawrence Hall of Science, Berkeley, CA

#398 Genome Science: Biology in the Post-genome Age

Harris • Demonstration (75 min)
• Genetics • HS 2C 4C

Join the experts in DNA and move your biology labs from DNA basics and recombinant technology in prokaryotes into the exciting world of eukaryotic genomics.

Bruce Nash (nash@csh.edu), Cold Spring Harbor Laboratory, Cold Spring Harbor, NY

Committee Meeting: Membership Committee

Heritage Boardroom

Sherry Annee (sannee@brebeuf.org) and Sue Trammel (suetrammel@jalc.edu), Committee Chairs

#443 Investigating the Environment's Influence on Gene Networks

Inman • Hands-on Workshop (75 min) • Genetics • HS 2C

An intro to lessons used to teach the concepts of gene and protein networks, multi-level data analysis, microbiology, biotechnology, and systems biology. Students act as collaborative scientists and design their own experiment. Free cultures provided.

Claudia Ludwig (cludwig@systemsbiology.org), Institute for Systems Biology, Seattle, WA and Mari Knutson Herbert (KnutsonM@lynden.wednet.edu), Lynden High School, Lynden, WA

#469 BSCS Presents: Assessing What Your Students Know

Kennesaw • Hands-on Workshop (75 min) • General Biology • HS

Join this interactive session to learn about a tool to examine student work and use resulting data to inform teaching. Bring samples of student work.

Brooke Bourdelat-Parks and Betty Stennett, BSCS, Colorado Springs, CO

Committee Meeting: Constitution & Bylaws Committee

Lenox

Ann Lumsden (Lumsden@bio.fsu.edu), Committee Chair

#452 Excel: Math in Bio Applications

Piedmont • Hands-on Workshop (75 min) • Instructional Strategies/Technologies • MS HS

Build math skills including the use of Excel into biology curriculum from middle school through AP Bio. From surface-area to volume through Hardy-Weinberg, demystify the mathematics that students (and teachers) need in order to truly understand patterns in biology.

Karen Lucci (klucci@hvrds.org), Hopewell Valley Central High School, Pennington, NJ and Catherine Ambos (CAmbos@somervillenj12.org), Somerville Middle School, Somerville, NJ

#336 From Surviving to Thriving: Making Strides Toward an Amazing AP Biology Career

Rosewell • Symposium (75 min)
• AP Biology • HS

What's the difference between teaching AP Biology and being a Rock Star at it? Can early-career teachers transition from surviving to innovating in the profession? Novices and veterans share stories of survival and success.

10:30am – 11:45am

continued

Beth Dixon (bdixon@rocklinacademy.org), Western Sierra Collegiate Academy, Rocklin, CA, Jenny Sarna, Farragut Career Academy, Chicago, IL and Valerie May, Woodstock Academy, Woodstock, CT

#348 Students Creating Puzzles as Active Learning Opportunities

Spring • Hands-on Workshop (75 min) • Instructional Strategies/Technologies • HS 2C 4C

Learning biology involves discovering new words and what they mean; this can be a daunting task for many students. When students create puzzles such as Sudoku and crosswords, learning becomes active and engaged. Learn to do this in your classroom.

Kerry Cheesman (kcheesma@capital.edu), Capital University, Columbus, OH

#293 Anatomy & Physiology

Techwood • Hands-on Workshop (75 min) • Anatomy & Physiology • MS HS

This presentation demonstrates techniques that make learning human anatomy and physiology both vivid and memorable. The presentation will highlight modeling, activities, games, and projects that appeal to a variety of learning styles and abilities.

Sylvia Tufts, Thronridge High School (retired), Flossmoor, IL

#ES28 Flipping Your Classroom with Learning Catalytics™

Marietta • Hands-on Workshop (75 min) • Instructional Strategies/Technologies • HS 2C 4C

Bring your web-enabled laptop, smartphone or tablet to test drive the Learning Catalytics student engagement.

Jung Choi, Georgia Institute of Technology, Atlanta, GA

Presented in partnership with Pearson

Noon – 1:00pm

Lunch Break

It's time to take a break and "digest" what you've learned while you digest some food. And don't forget to stop by the Exhibit Hall since you have some free time.

Continued: NABT Faculty Professional Development Summit: Implementing *Vision and Change* in the Biology Classroom

Regency VI • Special Program • 2C 4C

NABT Undergraduate Biology Meeting

Regency V • Invitation Only • 2C 4C

12:30pm – 4:00pm

NESCent/BEACON Evolution Symposium: Wallace, Islands, and Biogeography, 100 Year's Later

Learning Center • Special Program • Evolution • GA

Few scientists are as important or as misunderstood as Alfred Russel Wallace, the British naturalist and contemporary of Charles Darwin. This year's NABT **Evolution Symposium** focuses on Wallace, examining his historical and scientific legacies and his often-misunderstood relationship with Darwin, and exploring two examples of exciting, contemporary work in biogeography being conducted in Madagascar and Brazil.

See page 49 for full details.

The 2013 NABT Evolution Symposium is presented by BEACON and NESCent.

1:00pm – 2:15pm

Continued: NABT Faculty Professional Development Summit: Implementing *Vision and Change* in the Biology Classroom

Regency VI • Special Speaker • 2C 4C

#ES31 Proven Multimodal Tools for Significant Learning Improvement

Chicago A & B • Exhibitor Session • Demonstration • General Biology • HS 2C 4C

This session is an interactive experience demonstrating how a teacher uses a cloud based multimodal introduction to biology text that scientific lab research has shown significantly improves student learning by as much as two full grades.

William Rogers (wrogers@bsu.edu), Ball State University and Vizi Courseware, Muncie, IN

#ES29 Water Quality with PASCO Probeware

Hanover A • Exhibitor Session • Hands-on Workshop (75 min) • Environment/Ecology • GA

Participate in innovative activities from PASCO's biology lab manuals and get hands on with water quality sensors. See how PASCO's Multi-Measure™ Sensors and eZsample tests make field sampling easier than ever before.

Mike Blasberg (sales@pasco.com), PASCO scientific, Roseville, CA

#ES30 BIOZONE AP® Biology: Meeting the Needs of the New Examination

Hanover B • Exhibitor Session • Demonstration (75 min) • AP Biology • HS

BIOZONE presents innovative approaches for teaching AP Biology within the thematic framework of the four big ideas. Find out how BIOZONE's pedagogical approach can improve student achievement

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continued

in the current environment. Attendees receive FREE samples.

Richard Allan (richard@biozone.co.nz),
BIZONE International,
Hamilton, Waikato, NZ

#475 HHMI Presents: Building Phylogenetic Trees from DNA Sequences

Hanover C • Hands-on Workshop
(75 min) • Genetics • HS

Discover how to introduce students to basic bioinformatics concepts, explore sequence alignment and tree-building tools, and guide the interpretation of alignments and phylogenetic trees with free classroom-ready multimedia resources from HHMI.

David Knuffke, Deer Park High School,
Deer Park, NY

#321 Topics and Strategies to Influence Evolution Acceptance

Hanover D (Session I) • Paper
(30 min) • Evolution • HS 2C 4C

This session presents pedagogical implications of research which examined the influence of macroevolution instruction on students' understanding and acceptance of evolution. Ideas for influential content and teaching strategies are discussed.

Emily M. Walter (emw2n4@mail.
mizzou.edu), University of Missouri,
Columbia, MO

#461 Constructing & Testing a Hardy-Weinberg Math- ematical Model in AP Biology

Hanover E • Hands-on Workshop
(75 min) • AP Biology • HS

The new AP Biology Framework places an increased emphasis on quantitative skills & mathematical models. Bring your computer with a spreadsheet application and let's explore strategies to construct and test a Hardy-Weinberg equilibrium model.

Brad Williamson (ksbioteacher@gmail.
com), University of Kansas Center for
STEM Education, Lawrence, KS

#333 APS Presents: Ideas for Using The New Next Generation Science Standards

Hanover F & G • Hands-on Work-
shop (75 min) • General Biology
• MS HS

Experience active learning as you work to familiarize yourself with the newly released Next Generation Science Standards, and sample some of the many resources available in the *APS Archive of Teaching Resources* that can help.

Margaret Shain (mshain@the-aps.org)
and Melinda Lowy (mlowy@the-aps.
org), American Physiological Society,
Bethesda, MD

#284 Using Models to Construct Meaningful Explanations in Biology

Baker • Hands-on Workshop (75
min) • Instructional Strategies/
Technologies • HS 2C

Participants will use models of cell communication, photosynthesis and hands

on homeostasis. The focus will be using inexpensive materials to bring these explanations to life in the classroom. They will also receive templates for all activities.

Karen Lucci (klucci@hvrds.org),
Hopewell Valley Central High School,
Pennington, NJ and Lynn Meldru,
Cheltenham High School, Wyncote, PA

#379 Join NIH in Engaging Your Students with the Latest Human Genome Research

Courtland • Hands-on Workshop
(75 min) • Genetics • HS 2C

This summer, the Smithsonian debuted an exhibit celebrating the human genome project and 60 years of the double helix. This session invites you to bring this celebration into your classroom with hands-on activities aligned with the NGSS.

Dave Vannier (vannierd@mail.nih.gov),
Carla Easter (easterc@mail.nih.gov), and
Keisha Findley (keisha.findley@nih.gov),
NIH National Human Genome Research
Institute, Bethesda, MD



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1:00pm – 2:15pm

continued

#438 Archaea, Bacteria, Eukaryotes: Relatives in the Tree of Life

Dunwoody • Hands-on Workshop (75 min) • Evolution • HS

Practice using multiple lines of evidence such as molecular evidence and anatomical structures to support the evolutionary relationship of organisms. Place organisms on a large "Tree of Life", explain relationships based on evidence. Handouts will be provided.

Pamela Harman (pharman@seti.org), SETI institute, Mountain View, CA

#332 Improving STEM Completion for Community College Students

Edgewood (Session 1) • Paper (30 min) • Instructional Strategies/Technologies • 2C 4C

This session describes the processes and services used to attain a 92% graduation rate for students participating in a partnership between three Hispanic-serving community colleges and Kansas State University.

Todd Carter (todd.carter@sccc.edu), Seward County Community College, Liberal, KS

#446 Meet NGSS through Resiliency, Permaculture and Biodynamics

Edgewood (Session II) • Paper (30 min) • General Biology • HS 2C 4C

Environmental biology has been growing by leaps and bounds. The terminology and links to classroom learning can be hard to figure out. How do you get past "gardening" and "recycling" and into deeper, meaningful, interdisciplinary curriculum?

Teddie Phillipson-Mower (t0phil01@louisville.edu), University of Louisville, Louisville, KY

#319 Using Simulations in the Environmental Science Classroom

Fairlie • Hands-on Workshop (75 min) • Environment/Ecology • HS 2C 4C

Participants will experience two simulations that can be easily used in the classroom: *NIMBY Landfill Siting* and *Kildare: An Environmental Health Simulation*. These simulations promote critical thinking, problem-solving and active student involvement.

Linda Sigismondi (lindas@rio.edu), University of Rio Grande, Rio Grande, OH

#396 What's the Big Idea for Anatomy and Physiology?

Greenbriar • Demonstration (75 min) • AP Biology • HS

Instructors from Georgia Perimeter College invite you to join them as they discuss content from the new AP Biology Curriculum and demonstrate hands-on activities on the nervous and endocrine systems and immunity.

Patricia Mote (patricia.mote@gpc.edu) and Simone Brito (simone.brito@gpc.edu), Georgia Perimeter College, Dunwoody, GA

Committee Meeting: Nominating Committee

Heritage Boardroom

Betsy Ott (bott@tjc.edu), Committee Chair

#448 Making Microbiology Manageable - The Haloarchaea

Harris • Demonstration (75 min) • Microbiology & Cell Biology • HS 2C GA

Safe microbes for teaching fundamental microbiological and biological concepts via hands-on experimentation and exploration, *Haloarchaea* are remarkable extremophiles, and are also used for biotechnology & space survival studies.

Priya DasSarma (pdassarma@som.umaryland.edu), University of Maryland – Baltimore, Baltimore, MD

booth 615
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*continued***#436 NMSU-HHMI
Phenotypes to Genotypes:
Eyes Absent Gene**Inman • Hands-on Workshop
(75 min) • Genetics • HS

Participants in this workshop will be guided through the determination of *Drosophila* phenotypes and genotypes for a gene that controls the development of eyes, using the molecular biology techniques of DNA extraction, PCR, and gel electrophoresis.

Raena Cota (hhmi_mml@nmsu.edu) and
Christin Slaughter (hhmi_asc@nmsu.edu),
New Mexico State University-
HHMI, Las Cruces, NM

**#467 BSCS Presents: Using
Evidence-Based Medicine to
Teach NGSS Science Practices**Kennesaw • Hands-on Workshop
(75 min) • General Biology
• HS 2C 4C

EvidenceWorks is a video case-based module aimed at advanced high school and early college students. Participants will use the evidence-based medicine process to answer a medical question of therapy.

Mark Bloom and Brooke Bourdelat-
Parks, BSCS, Colorado Springs, CO

**Committee Meeting:
Retired Members Committee**

Lenox

Dennis Gathmann (mpidig@
yahoo.com), Committee Chair

**#419 Evidence, Evaluation,
and Explanations Through
Neuroscience**Piedmont • Hands-on Workshop
(75 min) • Neuroscience
• MS HS 2C

Explore student-driven activities and an engaging computer game that support skills in obtaining data, evaluating

evidence, and constructing explanations through a curriculum unit on neuroscience! Includes access to free NIH SEPA funded materials.

Hillary Lauren, Chandana Jasti and
Barbara Hug, (bhug@illinois.edu),
Project NEURON, Champaign, IL

**#346 Using Epidemiology
to Engage Students in
Scientific Practice**Rosewell • Demonstration
(75 min) • Curriculum
Development • MS HS

Epidemiology is a great way to engage students in the NGSS practices in your class! Explore how students can become disease detectives while being immersed in scientific practice. Outbreak investigation, ethics, and epi surveys will be discussed.

Emily Adams, The Walker School,
Marietta, GA

**#459 Alternative Assess-
ments – Creativity and
Critical Thinking**Spring • Paper (75 min)
• General Biology • 4C GA

Join us for two approaches that have been very successful in our BIO 101 General Biology course. *Cells R Us* incorporates factual information, analogies, a creative spirit and a somewhat different form of learning. *Biology in the News* promotes critical thinking, investigation of current science issues and research, following specific directions and using analytical thinking.

Sandra M. Latourelle (latoursm@
together.net) and Nancy Elwess (nancy.
elwess@plattsburgh.edu), Plattsburgh
State University, Plattsburgh, NY

**#239 Making Bioaccumula-
tion & Biomagnification
Relevant to Students**Techwood • Hands-on Workshop
(75 min) • Environment/Ecology
• MS HS GA

Distinguish between bioaccumulation and biomagnification, and examine how

pollutants move through trophic levels to impact ecosystems and human health.

Dana Haine (dhaine@unc.edu),
University of North Carolina –
Chapel Hill, Chapel Hill, NC

**#ES32 Enliven Your Class-
room with The *Instructor
Exchange***Marietta • Hands-on Workshop
(75 min) • Instructional
Strategies/Technologies
• 2C 4C

The *Instructor Exchange* is an online community where instructors can share teaching ideas and classroom materials with each other. In this session, we'll generate and discuss classroom strategies to improve learning outcomes and student engagement.

Eric Simon, New England College
Henniker, NH
Presented in partnership with Pearson

2:30pm – 3:45pm

***Continued:* NESCent/BEACON
Evolution Symposium:
Wallace, Islands, and
Biogeography, 100 Year's
Later**Learning Center • Special
Program • Evolution • GA***Continued:* NABT Faculty
Professional Development
Summit: Implementing
*Vision and Change in the
Biology Classroom***Regency VI • Special Speaker
• 2C 4C

2:30pm – 3:45pm

continued

#ES33 Painless Titrations with Probeware

Hanover A • Exhibitor Session
• Hands-on Workshop (75 min)
• General Biology • GA

Get hands on with PASCO's drop counter and multi-measure sensors to see how easy titrations can be. Collect data on the iPad® using PASCO's PASPORT AirLink 2 Bluetooth™ interface and PASPORT sensors.

Mike Blasberg (sales@pasco.com),
Fort Atkinson, WI

#ES34 Biology for NGSS: A New Approach for a New Program

Hanover B • Exhibitor Session
• Demonstration (75 min)
• General Biology • HS

BIOZONE's newest title has been written from first principles to engage young biology students while addressing the specific requirements of the Next Generation Science Standards for High School Life Sciences. Free sample provided to every attendee.

Richard Allan (richard@biozone.co.nz), BIZONE International, Hamilton, Waikato, NZ

#479 HHMI's The Double Helix

Hanover C • Hands-on Workshop (75 min) • General Biology
• HS GA

HHMI's new short film recounts the challenges, false starts, and eventual success leading to the discovery of the double-helical structure of the DNA molecule. Participants will receive free, classroom-ready resources to explore key concepts presented.

Cindy Gay, Steamboat Springs High School, Steamboat Springs, CO



NABT

National Association of
Biology Teachers

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a **SUCCESS.**

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*continued***#449 Spicing Up Introductory Biology Labs with Sex and Live Organisms**

Hanover D (Session I) • Paper (30 min) • General Biology • 2C 4C

In “The Evolution and Biology of Sex,” an introductory-biology course for non-science majors, we have successfully used live organisms and the primary literature in laboratory activities. We draw on these data to make conclusions and recommendations.

Sehoya Cotner (harri054@umn.edu),
University of Minnesota, St. Paul, MN

#410 Organelles as Organisms

Hanover D (Session II) • Paper (30 min) • Evolution • HS 2C 4C

An activity is presented where students evaluate evidence and construct arguments supporting claims about the evolution of cells. Students learn about the epistemic criteria used to evaluate arguments about events that occurred in deep time.

Robert Cooper, Pennsbury High School,
Fairless Hills, PA

#364 Help Your Students Succeed in AP Biology

Hanover E • Hands-on Workshop (75 min) • AP Biology • HS

Join two experienced AP teachers for a lively session on how to use the new curriculum framework to help students learn more biology. There will be hints on how to assess inquiry labs, develop skills in “Science Practices” and write better essays.

Theresa Holtzclaw and Fred Holtzclaw,
Webb School of Knoxville, Knoxville, TN

#347 A Bakers Dozen: 13 New Biotech Discoveries for 2013

Hanover F & G • Paper (75 min) • Genetics • MS HS 2C

Want to include cutting edge genetic research in your class? Ever wonder where all of this new science fits into your curriculum? Hear the top 13 discoveries of 2013 in student friendly language and correlated to national standards.

Neil Lamb, HudsonAlpha Institute for
Biotechnology, Huntsville, AL

#457 Data Nuggets: Unearthing Quantitative and Inquiry Skills

Baker • Hands-on Workshop (75 min) • Evolution • GA

“Data Nuggets” are worksheets with which students can practice interpreting quantitative information and make evidence based claims. Nuggets introduce a scientist and their research and students are led through making a scientific claim and supporting it quantitatively using graphs.

Elizabeth Schultheis (schulth5@msu.edu) and Melissa Kjelvik (kjelvikm@msu.edu), Michigan State University
– Kellogg Biological Station, Hickory
Corners, MI

#327 Educational Primers in GENETICS: A New Classroom Tool

Courtland (Session I) • Paper (30 min) • Genetics • HS 2C 4C

The importance of incorporating primary literature and current research into biology curricula has been emphasized in many education initiatives. This series of companion articles allows faculty to do that easily and effectively using current papers.

Beth Ruedi (eruedi@genetics-gsa.org),
Genetics Society of America (GSA),
Bethesda, MD

#430 Branch Out With Software to Create Phylogenetic Trees

Dunwoody • Hands-on Workshop (75 min) • AP Biology • HS 2C

Learn to use free software to construct phylogenetic trees and explore the role of genetics in evolution of social behavior. In this hands-on workshop, attendees will participate in a series of activities and plan for implementing them with students.

Robert Wallon (rwallon2@illinois.edu),
Claudia Lutz (cclutz2@illinois.edu)
and Barbara Hug (bhug@illinois.edu),
University of Illinois at Urbana –
Champaign, Champaign, IL

#441 Delivering Biology Online

Edgewood (Session I) • Paper (30 min) • General Biology • 2C

Online biology courses are an important component of community college course offerings. In this experimental design, students were randomly assigned to 2 delivery methods: at-home kits and virtual simulations. Virtual simulations scored higher.

Beverly Ranney, University of Northern
Colorado, Greeley, CO

#375 Storytelling and Collaborative Projects in Online ClassesEdgewood (Session II)
• Demonstration (30 min)
• Instructional Strategies/
Technologies • HS 2C 4C

I will share my permanent website of biology-related stories created by students, and explain how I have students in online classes work collaboratively to build web pages on applied biology concepts, which the class views to prep for a quiz.

Mike Tveten (mtveten@pima.edu),
Pima Community College, Tucson, AZ

2:30pm – 3:45pm

continued

#370 Real World Connections with Respiration and Photosynthesis

Fairlie • Hands-on Workshop (75 min) • Environment/Ecology • HS

Participants will learn about teaching photosynthesis and cellular respiration by exploring connections and applications in experiments with plants, NASA climate data models, interactive nutrient cycle activities, exercise and ecosystem services.

Beth Peterson (lpeterson@dist113.org), Highland Park High School, Highland Park, IL

#340 Strategies for Teaching Evolution in Anatomy and Physiology

Greenbriar • Paper (75 min) • Anatomy & Physiology • HS 2C 4C

We will explore activities that incorporate adaptation and evolution in human anatomy and physiology courses. Presentation topics will include highlighting the emergence and prevalence of certain diseases and exploring comparative skull anatomy.

Katey Hughes (hughes_kathleen1@columbusstate.edu), Columbus State University, Columbus, GA and George Sellers (gsellers@gwd51.org), Ware Shoals High School, Ware Shoals, SC

#351 DNA Barcoding = Independent Research in the Classroom

Harris • Demonstration (75 min) • Biotechnology • HS 2C 4C

Have students direct their own research and learn molecular biology, bioinformatics, and phylogenetics with projects that identify plants, animals, and food sources through unique DNA barcodes.

Bruce Nash (nash@cshl.edu), Cold Spring Harbor Laboratory, Cold Spring Harbor, NY

Committee Meeting: ABT Advisory Committee

Heritage Boardroom

Peter Mecca (meccap@fccps.org), Committee Chair

#401 Zoo Genetics: A Free Conservation Biology Curriculum

Inman • Demonstration (30 min) • Genetics • MS HS 2C

Zoo Genetics is a free curriculum developed by teacher Jason Crean and geneticist Jean Dubach, Ph.D. These activities look at real world conservation issues and how modern genetics helps to answer questions while simulating actual laboratory methods.

Jason Crean (jcrean@lths.net), Lyons Township High School – St. Xavier University, Chicago, IL

#362 Drugs, Drug Targets and You: A Molecular Perspective

Kennesaw • Hands-on Workshop (75 min) • Neuroscience • HS 2C

Join us as we introduce a hands-on modeling approach to teach the molecular basis of drug action, synapses and the science of addiction.

Tim Herman (herman@msoe.edu) and Shannon Colton (colton@msoe.edu), MSOE CBM, Milwaukee, WI

Committee Meeting: History Committee

Lenox

Pat Waller (wallerfp@enter.com) and Bunny Jaskot (BunnyJ19@aol.com), Committee Chairs

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#439 Evolution in Action in the Classroom

Piedmont • Hands-on Workshop (75 min) • Evolution • HS 2C 4C

Come see what's new with Avida-ED, digital evolution for education. Software, lessons, and instructor support materials will be provided. Participants are strongly encouraged to bring a laptop

Amy Lark (majchrz1@msu.edu) and Wendy Johnson (john3062@msu.edu), Michigan State University, East Lansing, MI

#281 Make Student Voice Real: Motivation, Engagement, & Community

Rosewell • Symposium (75 min) • Instructional Strategies/ Technologies • MS HS

Uncovering student thinking requires us to give students opportunities to think, speak, and know we care what they say. Help motivate rigorous scientific work by unpacking assumptions about your students' experiences.

Kirstin Milks, Bloomington High School South, Bloomington, IN and Stephen Traphagen, Rolling Meadows High School, Rolling Meadows, IL

#345 Science Fiction or Fact?

Spring • Hands-on Workshop (75 min) • General Biology • 2C 4C GA

Is *Jurassic Park* possible? Students often ask about the science in movies & TV shows. Why not use them to initiate discussions or apply scientific concepts? Our workshop will provide resources to use video clips and ways to assess learning.

Kathy Kresge and Sharon Lee-Bond Northampton Community College, Bethlehem, PA

#304 Get your Brain On: Engaging Your Neurons – and Your Students

Techwood Hands-on Workshop (75 min) • AP Biology • HS

One of the practices of effective instruction is modeling. Modeling with the nervous system will allow students to develop understanding of the anatomy and physiology of the neuron as well as the transmission of the impulse and chemical synapse.

Julie Baker and Karen Shepherd, Plano ISD Administration, Plano, TX and Kim Wolff, Plano Senior High School, Plano, TX

#ES35 New Advance Inquiry Labs for AP Biology from Flinn Scientific

Marietta • Demonstration (75 min) • AP Biology • HS

The revised AP Biology Curriculum integrates scientific inquiry and reasoning through a series of student directed, inquiry based labs. Join Flinn as we model the inquiry process and demonstrate activities from our guided-inquiry labs for AP Biology.

Maureen Hunt (flinn@flinnsci.com), Flinn Scientific, Batavia, IL


6:00pm – 7:00pm

BDC Welcome Mixer

Regency V • Special Event • Invitation Only

6:00pm – 9:00pm

NABT 75th Anniversary Gala

 Centennial III & IV • Special Event • \$30

Help NABT celebrate 75 years of empowering biology and life science educators at this special Gala. Featuring a look back at the history of NABT, this special commemoration will honor NABT's past and celebrate our future. Special guests and friends, including Janet Carlson (BSCS) Jay Labov (NAS), Dennis Liu (HHMI) and Eugenie Scott (NCSE) will help make this a night to remember.

See page 59 for details.

Sponsored by 

4:00pm – 5:30pm

75th Cake Cutting Celebration

Grand Hall • Special Event

Turning 75 is kind of a big deal, and like most "birthdays," we're celebrating with family, friends, and cake. Meet us in the Exhibit Hall for the festivities, and to see if you are a winner of one of three great treasure hunt prizes.

75th Anniversary Gala

PRESENTATION:

75 Years of Protecting Scientific Integrity

Friday, November 23 • 6:00pm – 9:00pm

Since 1938, NABT has been empowering educators to provide the best possible biology and life science education for all students by protecting scientific integrity in the classroom. Help celebrate this milestone by joining us for dinner and a very special presentation highlighting the relationships between education policy, classroom materials, leadership, and advocacy in promoting and protecting scientific integrity.

Jay B. Labov, Ph.D.

Senior Advisor for Education and Communication
National Academy of Sciences and National Research Council

Jay B. Labov is Senior Advisor for Education and Communication for the National Academy of Sciences (NAS) and the National Research Council (NRC). He has directed or contributed to fifteen National Academies reports focusing on teacher education, advanced study for high school students, K-8 education, international education, and undergraduate education. He has served as Director of committees on K-12 and undergraduate science education, the National Academies' Teacher Advisory Council, and was Deputy Director for the Academy's Center for Education. He directed a committee of the NAS and the Institute of Medicine that authored *Science, Evolution, and Creationism*, and oversees the NAS's efforts to confront challenges to teaching evolution in the nation's public schools. He oversees efforts at the Academy to work with professional societies and with state academies of science on education issues. He also oversees work on improving education in the life sciences under the aegis of the NRC's Board on Life Sciences.

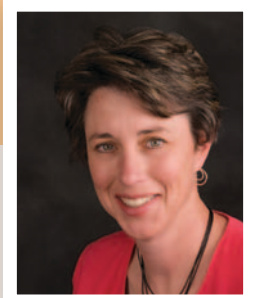


Janet Carlson, Ph.D.

Senior Science Educator, BSCS
Executive Director,
Center to Support Excellence in Teaching,
Stanford Graduate School of Education

Janet Carlson was the Executive Director of BSCS (Biological Sciences Curriculum Study) until October 2013. She worked at BSCS, a non-profit research and development organization located in Colorado Springs, CO, for 23 years where she oversaw the research that defined the work at BSCS as well as operations divisions and *The Science Exchange*, which communicates the work of BSCS and fosters the exchange of ideas, data, services, and materials among science educators. Dr. Carlson was responsible for initiating research projects and partnerships that bring the three lines of research to life: the nature of effective curriculum materials, teacher learning and practice, and leadership and policy. She also cultivates new opportunities for BSCS to partner with other organizations that are interested in improving the teaching and learning of science for all.

Currently, Dr. Carlson is the Executive Director of the Center to Support Excellence in Teaching (CSET) in the Graduate School of Education at Stanford University. She continues to work part time with BSCS.



Dennis W. Liu, Ph.D.

Head of Educational Media and Outreach,
Department of Science Education,
Howard Hughes Medical Institute

Dennis Liu is Head of Educational Media and Outreach for the Howard Hughes Medical Institute (HHMI) where he leads a team of scientist-educators producing multimedia to support teaching high school and college science. The team's award winning BiolInteractive

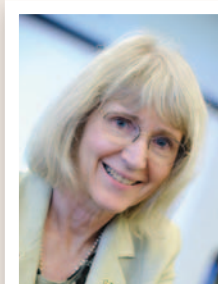


website is visited by millions of instructors seeking fresh ideas and content to engage students. His team's virtual labs won the Pirelli Top Prize for "Educational Media Promoting the Diffusion of Scientific Thinking and Culture." Dr. Liu trained in neuroscience and genetics, earning a B.S. in Zoology from the University of Wisconsin and a doctorate from the University of Oregon. While on faculty in the department of genetics at the University of Washington, he became passionate about education and the potential of multimedia. He has participated in numerous partnership projects such as the DNA Learning Center's DNAi website, The Smithsonian's *What it Means to Be Human* program, The E.O. Wilson Foundation's *Life On Earth* digital textbook, and Annenberg's *Reading in the Disciplines*. He is a contributing editor of the journal *CBE Life Sciences Education*. Dr. Liu is also currently leading the HHMI initiative producing short films to tell the greatest stories in science.

Eugenie C. Scott, Ph.D.

Executive Director
National Center for Science Education, Inc.

Eugenie C. Scott is Executive Director of the National Center for Science Education, Inc. (NCSE), a not for profit membership organization of scientists, teachers, and others that works to improve the teaching of science as a way of knowing, the teaching of evolution, and the teaching of climate change.



Scott is the author of *Evolution vs Creationism: An Introduction*, co-editor (with Glenn Branch) of *Not In Our Classrooms: Why Intelligent Design Is Wrong For Our Schools*, and the author of many articles in science journals. She has served as President of the American Association of Physical Anthropologists, and has been honored with the National Academy of Sciences Public Welfare Medal, the National Science Board Public Service Award, the AIBS Outstanding Service Award, the Geological Society of America Public Service Award, the AAAS Award for Scientific Freedom and Responsibility, the California Science Teachers Association Distinguished Service Award, and the National Association of Biology Teachers Honorary Membership, "the association's highest honor." She has also been awarded nine honorary degrees. In 2009, *Scientific American* named her "one of 10 outstanding leaders involved in research, business or policy pursuits that have advanced science and technology."