

November

1

“ I belong to NABT because I believe the future of education is dependent on communication and collaboration between professional scientifically minded educators. NABT serves as the community and the vector to disseminate the most current and effective teaching methods and educational approaches that are essential in the modern classroom. ”

James Lane

member since 2008

NABT
2012

TECHNOLOGY IN TEXAS

In a world of online resources, smartboards, tablets, apps, and the “cloud,” teachers must be ready and able to incorporate some cool tools into their curriculum. Put a Texas size T in STEM with these sessions focused on using 21st century technology.

These sessions are featured in gold boxes throughout the program.

7:30am – 8:30am

First Timers' Breakfast

Reunion Ballroom A-C • Invitation Only • Special Event

NABT Conference **first timers** are invited to learn more about the association and the Professional Development Conference over a complimentary breakfast. Each table will have an NABT mentor available to answer your questions and help you make the most of your time in Dallas.

The NABT First Timers' Breakfast is made possible through the generous support of HHMI.

8:45am – 9:45am

GENERAL SESSION

Ellen Prager, Ph.D.

Bio appears on page 8.

Sex, Drugs, and Sea Slime: The Oceans' Oddest Creatures and Why They Matter

Landmark Ballroom A-B • Special Speaker

Dr. Prager will present entertaining and informative stories and images from her newest book on marine biodiversity. She will highlight the amazing strategies organisms use to survive and reproduce in the sea and how they are connected to society in everything from our food supply to the economy, jobs, and in biomedical research and biotechnology.

From the tiny voracious arrow worms whose predatory ways may lead to death by overeating to the hagfish that ties itself into a knot to keep from suffocating in its own slime, Dr. Prager will provide an engaging ocean tell-all and a realistic look at why we all should care about the loss of species in the sea. She will also discuss the threats to marine biodiversity and what's needed to better protect ocean life.

10:00am – 11:15am

HHMI Presents: Building Phylogenetic Trees from DNA Sequences

Pegasus B • Hands-on Workshop (75 min.) • Evolution • HS 2C 4C

Understanding and building phylogenetic trees is a core component of biology. Learn about new *free* classroom resources that introduce students to basic bioinformatics concepts, explore sequence alignment and tree-building tools, and guide the interpretation of alignments and phylogenetic trees. Free DVDs and other resources will be distributed.

David Knuffke, Deer Park HS, Deer Park, NY and
Laura Helft, HHMI, Chevy Chase, MD

NHGRI Presents: The Talking Glossary of Genetic Terms

Cotton Bowl • Hands-on Workshop (75 min.) • Genetics • HS 2C 4C

See how students can use the Talking Glossary of Genetic Terms (<http://www.genome.gov/Glossary>) as an assignment for learning genetics, research paper construction, attribution, citation, use of illustrations, and the creation of a multimedia report.

Jeffre Witherly (jlw@mail.nih.gov), NHGRI, Bethesda, MD

BIO-RAD Inquiry Activities for pGLO™ Transformation (AP Big Idea 3) (Part 1 of 2)

Reverchon A • Exhibitor Session • Biotechnology • HS 2C 4C

The pGLO lab, with its inducible gene expression and robust results, provides a great system for student inquiry. Learn how to expand the lab for student directed experiments.

Leigh Brown (biotechnology_explorer@bio-rad.com), Bio-Rad, Hercules, CA

Sequence DNA With Your Hands!

Reverchon B • Exhibitor Session • Biotechnology • HS 2C 4C

This paper activity allows you to be the “scientist” sequencing an unknown genome.

Your understanding of DNA replication requirements, structure and polymerase activity will be reinforced as you conduct a sequencing reaction. With this paper activity the power of genomic sequencing comes to life!

Theresa A. Dlugi (t.dlugi@fotodyne.com), FOTODYNE, Hartland, WI

Using Probeware to Effectively Conduct Inquiry in AP® Biology

Sanger A • Exhibitor Session • General Biology • HS GA

Explore PASCO's biology products and see how they can help you deliver content and inquiry in the new AP® Biology labs.

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

From Petri to PCR: Incorporating the Versatile Model Microbe *Halobacterium sp. NRC-1* into Your Classroom (Part 1 of 2)

Moreno A • Exhibitor Session • Molecular & Cell Biology • JH HS 2C

Need help getting your students to make the genotype-to-phenotype connection? Learn how in this teacher-developed workshop by going hands-on with haloarchaea.

Priya DasSarma, Susan D. Nierenberg and Hilary C. Franke, Carolina Biological Supply Company, Burlington, NC

Mitosis & Meiosis Explored – Engaging Interactive Tutorials that will Become as Fundamental to your Teaching as These Processes are to Life!

Moreno B • Exhibitor Session • General Biology • HS 2C

Engaging live videos, simulated experiments, interactive animations, puzzles, and lots of instant-feedback lead students to discover that mitosis and meiosis are fascinating and readily-understandable processes. Come see for yourself!

Kerry Kim (info@simbio.com), Eli Meir and Simon Bird, SimBio, Missoula, MT

BIOZONE Showcase their Biology Workbooks & Presentation (Grades 9-12) Media

Gaston A • Exhibitor Session • General Biology • JH HS 2C 4C

Biozone's critically acclaimed student workbooks for AP, IB and general biology have cutting edge content that will assist your students achieve success. Clear learning objectives, concept-based design and engaging graphics encourage critical thinking and active interaction between the student and the information. Attendees receive FREE books.

Richard Allan (info@biozone.co.nz), BIOZONE International Ltd, Hamilton, NZ

Teaching Sex and Evolution with the Primary Literature

Gaston B (Session I) • Paper (30 min.) • General Biology • HS 2C 4C

In "The Evolution and Biology of Sex," an introductory-biology course for non-science majors, we have used primary literature in laboratory and in-class activities. We discuss these activities and make recommendations for implementation.

Sehoya Cotner (harri054@umn.edu) and **Deena Wassenberg**, University of Minnesota, Minneapolis, MN

Science Con-Artists

Gaston B (Session II) • Paper (30 min.) • General Biology • HS 4C GA

In the public media, some people claim scientific expertise and authority when they have none. Learn their common tricks and how we can prepare students to be savvy consumers of science.

Douglas Allchin, University of Minnesota, Minneapolis, MN

Committee Meeting: Global Perspectives Committee

Pryor-Crockett

Chair: Jackie McLaughlin

Writing for *The American Biology Teacher*

McMillan (Session I) • Demonstration (30 min.) • General Biology • HS 2C 4C

Learn techniques for writing a successful article for *The American Biology Teacher*. Included are author guidelines, sample articles and an opportunity to ask questions.

William Leonard (leonard@clemsun.edu), Editor, *The American Biology Teacher*, Mountain Rest, SC

Reviewing for *The American Biology Teacher*

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

The *ABT* is looking for a few good reviewers. The Editor will share reviewing techniques for new and potential reviewers and show you how you can contribute to biology education.

William Leonard (leonard@clemsun.edu), Editor, *The American Biology Teacher*, Mountain Rest, SC

Engaging (Grabbing, Hooking) Students in Biology Classrooms

Cumberland A (Session I) • Paper (30 min.) • Instructional Strategies/Technologies • HS 2C 4C

"Why should I learn this?" Many students come to class with an attitude of "I dare you to make me interested". Every teacher has the responsibility to engage students in the topic. Methods shown to be useful in the college classroom will be shared.

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

Authentic Environmental Data Can Enhance Science Understanding and Improve Math Skills

Cumberland A (Session II) • Paper (30 min.) • Environment/Ecology • HS 2C 4C

I will quickly cover examples of potential sources of weather and water quality data available on the internet. A sample lesson

uses temperature data to brainstorm on "normal" & "mean" values, graph these data, then compare them to known normals.

William Kroen (William.Kroen@wesley.edu), Wesley College, Dover, DE

BIOL 100: College Credit for Online High School Neuroscience

Cumberland B • Symposium (75 min.) • Instructional Strategies/Technologies • GA 4C

Presenters share a model online program, *BIOL 100*. This college accredited lab course, with a focus on addiction, engages high school students through multiple learning strategies and provides a professional community of support for instructors.

Elizabeth Hemphill (ehemphill@bethelsd.org), Spanaway Lake High School, Spanaway, WA and **Joanna Stewart**, Graham-Kapowsin High School, Graham, WA

Hominin Evolution and Climate Change: How Do We Know What We Know?

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

Hominin evolution and climate change are important for understanding our origins. We will investigate "how do we know what we know?" by visiting the Omo-Turkana basin, using cast skulls, the Turkana database, and Mesquite software.

Norman Thomson, University of Georgia, Athens, GA and **Anna Scott**, Athens Academy High School, Athens, GA

SOS (Students' soft skills Optimize Success)

Cumberland D (Session I) • Demonstration (30 min.) • Curriculum Development/Supervision • JH HS 2C

Student success in transition relies on implementation of soft skills that students must be exposed to and acquire over time.

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

Thursday November 1

10:00am – 11:15am

continued

This session will demonstrate incorporation of these crucial soft skills, as well as the CCRS, into existing assignments.

Laura Houston (lhouston15@alamo.edu),
Alamo Colleges/Northeast Lakeview/ San Antonio
Pathways Committee, San Antonio, TX

Using BioClubs for Co-Curricular Experiences

Cumberland E (Session I) • Demonstration (30 min.) • General Biology • HS 2C 4C

Biology clubs encourage co-curricular education through service projects, guest speakers, weekend trips, and taking students on extended trips. Strategies involved in developing a successful BioClub will be discussed.

Curt Coffman (ccoffman@vinu.edu) and
Andrew Corless (acorless@vinu.edu), Vincennes
University, Vincennes, IN

Helping Students Choose a Research Project

Cumberland E (Session II) • Paper (30 min.) • General Biology • JH HS

Independent research is a wonderful way to improve student understanding of science, but students find it hard to choose a suitable research topic. Ideas and strategies to help students and their teachers with this critical task will be provided.

Peter Langley, Portland, OR

Bioethics 101

Cumberland F • Hands-on Workshop (75 min.) • Bioethics • JH HS 4C

Engage students in thinking about ethical dimensions of scientific research using engaging and practical lessons developed by experienced teachers. Attendees will receive extensive bioethics resources.

Jeanne Chowning (jchowning@nwabr.org)
and **Joan Griswold** (jgriswold@nwabr.org, NW
Association for Biomedical Research, Seattle, WA

Sense in Molecules

Cumberland G • Demonstration (75 min.) • Evolution • HS 2C

Analyzing their own DNA, students predict their ability to taste a bitter substance. This lab highlights the relationship between phenotype and genotype, illustrating personalized medicine, such as predicting drug responses using DNA.

David Micklos and **Bruce Nash**, DNA Learning Center, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY

TECHNOLOGY IN TEXAS

DryadLab: Real Data for the Classroom

Cumberland H • Demonstration (75 min.) • General Biology • HS 2C 4C

Have your students work with real data from researchers! DryadLab modules are based on real datasets researchers have generated on Primate *Life Histories*, *Extinction and Galapagos Finches* and others. All materials are open access.

Sam Donovan (sdonovan@pitt.edu),
University of Pittsburgh, Pittsburgh, PA and
Kristin Jenkins (Kristin.Jenkins@bioquest.org),
BioQUEST, Madison, WI

Inquiry-Based Activities in Genomics and Population Genetics

Cumberland I • Hands-on Workshop (75 min.) • Genetics • HS 2C 4C

How is the human genome like a nonsense poem (*Jabberwocky*)? Students find out when they use genome sequencing to put the poem together. We'll also use a computer model to do population genetics inquiries (aligning with the new AP Bio curriculum).

Andrew Lyman-Buttler (LB@ismscience.org), The International School of Minnesota, Eden Prairie, MN

Introducing a New Intro Biology Curriculum

Cumberland J • Hands-on Workshop (75 min.) • General Biology • HS 2C 4C

Take a tour of our innovative, inquiry-driven, research-based, NSF-funded curriculum. Participants will get a taste of the activities, receive access to student and instructor materials, and see preliminary assessment data from 3 institutions.

Deborah Donovan (donovan@biol.wvu.edu),
Western Washington University, Bellingham, WA,
Irene Salter and **Leslie Atkins**, California
State University, Chico, CA and **John Rousseau**,
Whatcom Community College, Bellingham, WA

Bridging the Gap between Learning Theory and Teaching Practice: Engaging Students in Creative Problem Solving Activities

Cumberland K • Hands-on Workshop (75 min.) • Instructional Strategies/Technologies • 2C 4C GA

There is an apparent gap between how students learn and how we teach. To bridge this gap, it is important to know the research-based principles of learning and how to apply these principles to engage students in problem solving activities.

Sandhya Baviskar and **Linda Tichenor**,
University of Arkansas, Fort Smith, AR

Common Core Standards + Science Standards = Science Literacy

Cumberland L • Symposium (75 min.) • Instructional Strategies/Technologies • JH HS

Learn how to easily and effectively implement the *Common Core Standards for Scientific Literacy* in the middle and high school science classroom. This teaching methodology combines science content with research-based learning strategies.

Kerryane Monahan, Saint Edward's School,
Vero Beach, FL and **Leslie Taylor**, Port Saint Lucie
High School, Port Saint Lucie, FL

11:30am – 12:45pm

INVITED SPEAKER

Duane Pierson Ph.D.

Bio appears on page 9.

Human Spaceflight: Risks and Benefits

Reunion A-B • Special Speaker

Human spaceflight has the ability to inspire the human spirit as few endeavors can. However, it is not without risks. Dr. Duane Pierson serves as NASA's Chief Microbiologist and is an expert on the many microbiological aspects of space flight. He will explain how risks associated with microbiology in closed environments are identified and strategies for mitigation are developed.

Space is a hostile environment that causes various adverse effects on human physiology including changes in: musculoskeletal, cardiovascular, immunity, and others. In addition to changes to the humans, Dr. Pierson will discuss changes to the microorganisms that accompany all human spaceflight missions. At the cellular level, there are changes to mammalian cells as well as the human microbiota. Gene expression is altered. Some bacteria become much more virulent in the space environment, issuing new challenges of the infectious disease risks.

Presented as part of the ASM Symposium: *Microbes: Evolution and Life at the Extremes*

HHMI's Night at the Movies in Your Classroom

Pegasus B • Hands-on Workshop (75 min.) • General Biology • HS 2C 4C GA

HHMI's latest documentary film can enrich your teaching about the nature and power of the scientific method. Be among the first to receive brand new, classroom-ready resources designed to help you connect the film to your curriculum. Free lessons, tips, and activities that address key concepts emphasizing connections between the earth

and life sciences will be demonstrated and distributed.

Mary Colvard, STANYS, Deposit, NY and Erik Clements, HHMI, Chevy Chase, MD

Integrating the Big Questions of Sustainability into STEM Teaching and Learning

Cotton Bowl • Demonstration (75 min.) • Global Education • 2C 4C

Participants will identify best practices, barriers, opportunities, and effective framing for integrating sustainability into biology curricula for undergraduates, both for those students who are biology majors and non-majors.

Susan Musante (smusante@aibs.org), AIBS, Reston, VA and Daniel Ward, Waubensee Community College, Sugar Grove, IL

BIO-RAD Inquiry Activities for pGLO™ Transformation (AP Big Idea 3) (Part 2 of 2)

Reverchon A • Exhibitor Session • Biotechnology • HS 2C 4C

The pGLO lab with its inducible gene expression and robust results provides a great system for student inquiry. Learn how to expand the lab for student directed experiments.

Leigh Brown (biotechnology_explorer@bio-rad.com), Bio-Rad, Hercules, CA

Do Vampires Walk Among Us? (Part 1 of 2)

Reverchon B • Exhibitor Sessions • Biotechnology • HS 2C 4C

Porphyrias are rare genetic diseases that may have connections to vampire legends. We will discuss porphyria and screen for it using genetic testing.

Theresa A. Dlugi (t.dlugi@fotodyne.com), FOTODYNE, Hartland, WI

Data Collection on Your iPad® with SPARKvue HD

Sanger A • Exhibitor Session • Instructional Strategies/Technologies • GA

SPARKvue HD is an integrated science learning environment for the iPad, offering a full suite of display and analytical tools, reflection prompts, journaling, and more. Bring your own iPad or use ours!

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

New Guided Inquiry Labs for AP® Biology from Flinn Scientific

Sanger B • Exhibitor Session • Instructional Strategies/Technologies • HS

Four big ideas, more great labs! Join Flinn Scientific as we model the inquiry process and demonstrate activities from our new guided inquiry labs for AP® Biology. We will share proven strategies for improving students' ability to generate meaningful questions, design experiments, and analyze scientific evidence.

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

From Perti to PCR: Incorporating the Versatile Model Microbe *Halobacterium sp.* NRC-1 into Your Classroom (Part 2 of 2)

Moreno A • Exhibitor Session • Molecular & Cell Biology • JH HS 2C

Need help getting your students to make the genotype-to-phenotype connection? Learn how in this teacher-developed workshop by going hands-on with haloarchaea.

Priya DasSarma, Susan D. Nierenberg and Hilary C. Franke, Carolina Biological Supply Company, Burlington, NC

Mitosis & Meiosis Explored – New Tutorials from SimBio are Perfect Complements to the Revised AP® Biology Course

Moreno B • Exhibitor Session • General Biology • HS 2C

SimBio's new tutorials on the cell cycle dovetail perfectly with the student-directed,

“NABT builds my professional network. NABT also provides great opportunities to serve, recognize others, and be recognized by others. I recommend NABT membership to many of my colleagues and students.”

Steven
Christenson
member since 2007

11:30am – 12:45pm

continued

inquiry-based focus of the revised AP® Biology framework. Aligned and ready to go!

Kerry Kim (info@simbio.com), **Eli Meir** and **Simon Bird**, SimBio, Missoula, MT

How Healthy are Three of Your Genes?

Gaston B • Paper (75 min.) • Genetics • 2C 4C GA

This project studied three genes that have the potential to impact a person's mental and/or physical health. The study examined over 100 individuals.

Nancy Elwess and **Sandra Latourelle**, SUNY Plattsburgh, Plattsburgh, NY

Committee Meeting: Finance Committee

Pryor-Crockett

Chair: **Bob Melton**

Using Systems Thinking to Understand Ocean Acidification

Cumberland A • Hands-on Workshop (75 min.) • Oceanography/Marine Biology • JH HS 2C

Explore an NSF developed, systems biology, hands-on, and inquiry-based curriculum module. Students build STEM and systems thinking skills while learning about ocean acidification and its complex, interdisciplinary effects on ocean systems.

Claudia Ludwig, Institute for Systems Biology, Seattle, WA

Underprepared Students in Introductory Biology

Cumberland B (Session I) • Demonstration (30 min.) • General Biology • 2C 4C

The moniker of "underprepared student" can mean many things. The focus of this session is finding out where your students are the first week and how to make adjustments in

your instructional approach to bring students up to speed with core skills.

Todd Carter, Seward County Community College, Liberal, KS and **Lindsey Carter**, University of Mississippi, Oxford, MS

Transformative Life Science Instruction: Integrating Biology and Chemistry in Introductory Courses

Cumberland B (Session II) • Paper (30 min.) • General Biology • HS 2C 4C

In our attempts to develop a program to integrate biology and chemistry into introductory courses, we have been able to identify the concepts students struggle with the most and some of the other challenges students face when taking these courses.

Anna Hiatt (anna.hiatt@okstate.edu), **Julie Angle** (julie.angle@okstate.edu), **John Gelder**, **Jason Belden**, **Julie Thomas**, **Toni Ivey**, **Lance Forshee**, **Traci Richardson** and **Donald French**, Oklahoma State University, Stillwater, OK

The Rock and Fossil Record: How We Know What We Know

Cumberland C • Hands-on Workshop (75 min.) • Evolution • JH HS

Explore a series of classroom activities that examine black-line core samples to determine the relative age, use absolute dating techniques to determine the fossil ages, and to construct a cladogram based on the morphology of fossil organisms.

Pamela Harman, SETI Institute Education and Public Outreach, Mountain View, CA

Zoo Genetics: A Free Conservation Genetics Curriculum

Cumberland D (Session I) • Demonstration (30 min.) • Genetics • JH HS GA

Zoo Genetics is a free curriculum developed by teacher Jason Crean and geneticist Jean Dubach, PhD. These activities look at real

world conservation issues and how modern genetics helps to answer questions while simulating actual laboratory methods.

Jason Crean, Lyons Township HS - St. Xavier University, Woodridge, IL

So Many Genes - So Few Traits

Cumberland D (Session II) • Demonstration (30 min.) • Genetics • HS 2C 4C

An inexpensive class activity uses pom-poms to represent genes for height and helps students gain an understanding of how variable traits, like height and complex diseases in humans, are influenced by polygenetic inheritance.

Todd Nelson (kelson@byui.edu), Brigham Young Univ - Idaho, Rexburg, ID

Nature in the Classroom: The Importance of Informal Learning

Cumberland E • Hands-on Workshop (75 min.) • General Biology • JH HS GA

An entire generation of children have been raised isolated from the natural world. Learn how to rekindle this connection and encourage learning through informal experiences and inquiry. Make nature something your students are a part of, not something they are apart from.

Jim Lane (lane0143@umn.edu), Mahtomedi High School, Mahtomedi, MN and

Isaac Stewart, Fisher High School, Fisher, IL

Bioinformatics: Medical Problem Solving

Cumberland F • Hands-on Workshop (75 min.) • Biotechnology • HS 2C 4C

Experience bioinformatics for every biology student through the exciting, authentic lens of real-world medical problem solving. Use online databases and microarray data to resolve medical cases from Amish and Mennonite children in Lancaster, PA.

Ellie Rice, Franklin & Marshall College, Lancaster, PA, **Tara Flick**, Conestoga Valley High School, Lancaster, PA and **Susan Dodge**, New School of Lancaster, Lancaster, PA

Reading Genes: What DNA Says About Our Human Family

Cumberland G • Demonstration (75 min.) • Evolution • HS 2C 4C

Come up to the minute with DNA research on human origins and learn simple methods to continue the exploration of this unfolding story in your classroom.

David Micklos and **Bruce Nash**, DNA Learning Center, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY

TECHNOLOGY IN TEXAS

Tips and Tricks for Using Online Assessment Tools

Cumberland H • Demonstration (75 min.) • General Biology • HS 2C 4C

Learn how to use online homework as a means for engaging students and monitoring their learning in both AP[®] Biology and college classes.

Eileen Gregory, Rollins College, Winter Park, FL and **Diane Sweeney**, Punahou School, Honolulu, HI

Enzyme Adventures - Amylase Assays

Cumberland I • Hands-on Workshop (75 min.) • Biotechnology • HS 2C 4C

Amylase is a real biotechnology product and an interesting industrial enzyme. In this lab workshop, bacterial versus human amylase activity is compared.

Ellyn Daugherty, San Mateo High School, Redwood City, CA

Vision and Change at the Two Year College

Cumberland J • Paper (75 min.) • Curriculum Development/Supervision • 2C 4C

The 2011 *Vision and Change* report outlines best practices to improve biology education. How can we implement these at open-enrollment colleges whose mission is to prepare transfer students? Join our discussion of the potential for change.

Stacey Kiser (kisers@lanec.edu), Lane Community College, Eugene, OR

A Dime a Dozen: 10 New Biotech Discoveries for 2012

Cumberland K • Symposium (75 min.) • Biotechnology • JH HS 4C

Want to include cutting edge genetic research in your class? See the top 10 discoveries of 2012 presented in student friendly language and correlated to national standards.

Neil Lamb, HudsonAlpha Institute for Biotechnology, Huntsville, AL

Writing Quality Multiple Choice Questions

Cumberland L • Demonstration (75 min.) • Instructional Strategies/Technologies • JH HS 2C

AP and SAT Test developers from ETS will present the dos and don'ts of writing good test items. The participants will learn about an opportunity to submit items to be used in these exams. Guidelines and samples will be distributed.

Israel Solon and **Nancy Olds**, Educational Testing Service, Princeton, NJ

12:30pm – 1:00pm

Coffee Break

Reunion Ballroom Foyer • Special Event

Now that you've been exposed to a morning of food for thought, it's time to grab a real snack. Join us for a quick coffee break before you head to your next session.

Sponsored by Chill Expeditions.

1:00pm – 5:00pm

AP[®] BIOLOGY SYMPOSIUM

Pegasus B • Special Program

Understanding the Revised AP[®] Biology Course

(1:00pm – 1:30pm)

Members of the College Board's AP[®] Biology Development Committee will provide an overview of the changes to the course. New instructional materials, resources, and the AP Course Audit process will also be reviewed.

Gordon Uno, University of Oklahoma, OK and **Sharon Radford**, The Paideia School, Atlanta, GA

Writing Questions for the New AP[®] Biology Exam

(1:30pm – 3:30pm)

Members of the College Board's AP[®] Biology Development Committee and the Educational Testing Service will provide an overview of the new exam and related resources. Participants will be actively engaged in writing and sharing questions, and how to effectively integrate exam questions into lesson planning and instruction.

Gordon Uno, University of Oklahoma, OK, **Sharon Radford**, The Paideia School, Atlanta, GA, and **Mitch Price** and **Eric Powers**, Educational Testing Service, NJ

Designing Instruction for the Revised AP[®] Biology Course Description

(3:45pm – 4:45pm)

In this session, participants will be actively engaged in sharing strategies and activities, and creating an outline for an instructional unit using the AP[®] Biology Curriculum Framework.

Gordon Uno, University of Oklahoma, OK and **Sharon Radford**, The Paideia School, Atlanta, GA

The AP[®] Biology Symposium is sponsored by Pearson.

“... where else can you get your biogeek on and collaborate with professionals who keep pushing the science education envelope? The professional development opportunities and partnerships through NABT are really without equal! They truly bring together the TOP NOTCH to further science education.”

Steve Ortmeier
member since 2012

1:00pm – 5:00pm

continued

NABT BIOLOGY EDUCATION RESEARCH SYMPOSIUM

Cumberland D • Special Program

1. Transforming an Undergraduate Introductory Biology Course through Cinematic Lectures and Inverted Classes: An Assessment of the CLIC Model of the Flipped Classroom

David Marcey (marcey@clunet.edu) and **Michael Brint**, California Lutheran University, Thousand Oaks, CA

2. Engaging Undergraduates in Introductory Biology and Chemistry Laboratories: Relevance through Disciplinary Connections and Active Strategies

Renée Schwartz (r.schwartz@wmich.edu), **John Geiser**, **Leonard Ginsberg**, **Jacinta Mutambuki**, **Donald Schreiber**, **Donald Schreiber**, and **Robert Ruhf**, Western Michigan University, Kalamazoo, MI

3. Students' Sysz Reasoning of Food Webs at Lower Elementary Level (Grades 1-4)

Hayat Hokayem (hayathokayem@gmail.com), Texas Christian University, Fort Worth, TX and **Amelia Wenk Gotwals**, Michigan State University, East Lansing, MI

4. Implementation of Critical Thinking Exercises in Introductory Biology

M. Addy (Tracie.addy@quinnipiac.edu) and **Maura Stevenson**, Quinnipiac University, Hamden, CT

5. Using Inquiry-Bases Activities to "Transform" Undergraduate Science Education: A Model for Understanding Cell Growth and Viability

Swathi A. Kumar, The Pennsylvania State University, University Park, PA, **Missy Coyle**, **Logan Bonner**, **Jacqueline McLaughlin** (jxm57@psu.edu), The Pennsylvania State University, Lehigh Valley, PA

6. Citizen science improves scientific literacy in pre-service elementary teachers

Tyler Orr and **Erin Baumgartner**, Western Oregon University (baumgarte@wou.edu), Monmouth, OR

7. Investigating the Validity and Reliability of the Questionnaire Assessing the Learning Environment and Student Attitudes (QuALESA)

George Sirrakos (GS1404@gmail.com) Curtin University of Technology, Perth, Australia

8. Human Genetics and Ethical Issues: Helping Students Bridge the Gap between Science and Humanities

Kerry L. Cheesman (kcheesma@capital.edu), and **Ian Cheesman**, Capital University, Columbus, OH

9. Research on Excursions and Indigenous Knowledge Systems in Life Science

Josef De Beer (josefdb@uj.ac.za), University of Johannesburg, Republic of South Africa, Special Guest, Recipient of the 2012 Four-Year Section Research in Biology Education Award.

1:00pm – 2:15pm

ASM Presents: *Microbes: Evolution and Life at the Extremes*

Cotton Bowl • Symposium (75 min.) • Evolution • HS 2C 4C

The second of three talks presented by American Society for Microbiology on studies of microbes in evolution and survival and behavior in extreme environments. This session will be by Dr. George Fox, who will describe how ribosomes are used to study evolution.

George Fox, University of Houston, Houston, TX

Teaching Evolution through Inquiry with Bio-Rad and Vernier (Part 1 of 2)

Reverchon A • Exhibitor Session • Evolution • HS 2C 4C

In this hands-on workshop, you will learn how easy it is to integrate evolution activities into your biology curriculum. Come try our innovative products!

Leigh Brown (biotechnology_explorer@bio-rad.com), Bio-Rad, Hercules, CA and **John Melville** (jmelville@vernier.com), Vernier Software & Technology, Beaverton, OR

Do Vampires Walk Among Us? (Part 2 of 2)

Reverchon B • Exhibitor Sessions • Biotechnology • HS 2C 4C

Porphyrias are rare genetic diseases that may have connections to vampire legends. We will discuss porphyria and screen for it using genetic testing.

Theresa A. Dlugi (t.dlugi@fotodyne.com), FOTODYNE, Hartland, WI

Investigating Mitochondrial Genetics

Sanger B • Exhibitor Session • General Biology • HS 2C

Take part in an inquiry-based investigation of mitochondrial genetics that fuses modern molecular biology with traditional pedigree analysis.

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

BSCS Presents: Toward High School Biology

Gaston A • Hands-on Workshop (75 min.) • General Biology • JH

Explore key activities from a unit developed to improve middle school teaching and learning of foundational ideas in chemistry developed to better support students' ability to explain growth and repair in living things.

Janet Carlson and **Rebecca Kruse**, BSCS, Colorado Springs, CO

Population Ecology: *Wolf vs. Moose*

Gaston B • Demonstration (75 min.) • General Biology • JH HS GA

The wolf vs. moose, a predator/prey relationship, provides an excellent opportunity to study population ecology on an island, Isle Royale National Park. With the wolf population in peril, the 53+ year study may need to be altered.

Sylvia Tufts, Thornton HS District - Retired, Flossmoor, IL

Committee Meeting: Awards Committee

Pryor-Crockett

Chair: **Priya DasSarma**

Committee Meeting: Occasional Publications

Kessler

Chair: Rich Poole

Strategy! Strategy! Creativity and Critical Thinking

McMillan (Session I) • Paper (30 min.) • General Biology • 2C 4C GA

We share two strategies, "Cells R US" and "Biology in the News." Both have been very successful in our BIO 101 General Biology course.

Sandra Latourelle and Nancy Elwess,
SUNY Plattsburgh, Plattsburgh, NY

Student Debates: Integrating Topics in General Biology

McMillan (Session II) • Paper (30 min.) • Global Education • 2C 4C GA

This paper will discuss how debates on real world issues can help integrate concepts about the nature of science, biodiversity, genes and genetics, evolution, and human impacts on the biosphere, and develop student presentation and library skills.

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

Marine Science Mania V

Cumberland A • Hands-on Workshop (75 min.) • Oceanography/
Marine Biology • JH HS

Using the college readiness and marine science literacy standards, this session will focus on teaching a semester course in marine science. There will be a focus on physical, biological, chemical, and geological oceanography. Includes a CD of activities and giveaways.

Tom Froats, Prospect High School, Darien, IL

WOW Biology XIII

Cumberland B • Hands-on Workshop (75 min.) • General Biology • JH HS

On a budget? Join the Mississippi Association of Biology Educators (MSABE) as we share some of our inexpensive (cheap), fun and effective

instructional activities. Handouts! Door prizes!

Sheila Smith, Ridgeland, MS, Jammy Davis,
Forest Hill High School, Jackson, MS, and Mary
Branson and Tammy Cox, Jackson Public
Schools, Jackson, MS

Responding to "Icons of Evolution"

Cumberland C (Session I) • Paper (30 min.) • Evolution • JH HS GA

Every year in classrooms across America, teachers are greeted by a series of ten questions as posed by Jonathan Wells in "Icons of Evolution." We offer a response with ten classroom-tested powerpoints which can be adapted to your classes.

Leonard Bloch (lenbloch@uga.edu), University
of Georgia, Athens, GA

Evo-Devo: Target Concepts and Students' Challenges

Cumberland C (Session II) • Paper (30 min.) • Evolution • 2C 4C

Some evo-devo concepts are critical for biology majors to understand. We present a framework for scaffolding these concepts and document the challenges that students have understanding and integrating these concepts into their biological thinking.

Anna Hiatt (anna.hiatt@okstate.edu), Oklahoma
State University, Stillwater, OK; Kathryn Perez,
University of Wisconsin - La Crosse, La Crosse, WI;
Greg Davis, Bryn Mawr College, Bryn Mawr, PA;
Caleb Trujillo, Purdue University, West Lafayette,
IN; Mark Terry, Northwest Schools, Seattle,
WA; Rebecca Price, University of Washington-
Bothell, Bothell, WA; Donald French, Oklahoma
State University, Stillwater, OK; and EVO CI Work-
ing Group, NESCent, Durham, NC

Is it (Carolina) Gold? Genetics Meets American History

Cumberland E • Hands-on Workshop (75 min.) • General Biology • JH HS

Use modern genetic techniques to determine if an archaeological sample is Carolina Gold Rice, then explore a cross-curricular lesson collection full of data rich exercises.

Handouts. Online at: <http://ricediversity.org/outreach/educatorscorner>

Ellie Rice, Franklin & Marshall College,
Lancaster, PA

Using Case Studies to Teach the Scientific Method and Ethics

Cumberland F (Session I) • Paper (30 min.) • Bioethics • HS 2C 4C

Most biology courses do not address ethical questions associated with scientific studies. We have developed a case study in which students examine three experiments to explore both whether they are scientifically valid and whether they are ethical.

Andrea Bixler, Clarke University, Dubuque, IA
and Fred Schnee, Loras College, Dubuque, IA

Free On-line Stem Cell Curriculum with Five Units

Cumberland F (Session II) • Demonstration (30 min.) • General Biology • HS 2C

CIRM, California's State Stem Cell Agency, will describe a five-unit, free online curriculum that covers numerous high school standards requirements while providing knowledge of a field students are hearing about and want to know about stem cells.

Don Gibbons (dgibbons@cirm.ca.gov), Califor-
nia Institute for Regenerative Medicine,
San Francisco, CA

TECHNOLOGY IN TEXAS

A Micro World View

Cumberland G • Hands-on Workshop (75 min.) • General Biology • JH HS

Engage students in thinking about flow of energy in ecosystems from a new perspective--through the microscope! Use DemoSlides to trace food chains and make predictions about ecosystems on a wholly different scale. Be sure to bring your laptop along.

Catherine Ambos, Somerville, NJ

“ NABT is a great place to share real classroom issues and materials. As a generalist teaching the breadth of Introductory Biology I need a place to go that covers everything. NABT also provides the space to interact with AP® Biology, two-year and four-year introductory biology instructors, which we need if we are going to implement national reform. ”

Stacey Hiser
member since 2007

1:00pm – 2:15pm

continued

Online Lab Students Earn Better Grades Compared to In-Class Lab Students

Cumberland H (Session I) • Paper (30 min.) • General Biology • HS 2C 4C

Data comparing two Bio 123 pilot online labs and four traditionally-taught labs suggest that students prefer the convenience of at-home labs, and those students using the at-home labs had a significantly better understanding of the experiments and concepts as well as better retention of the material.

Erica Kipp, Pace University, New York, NY

How Digital Technology Can Maximize Learning in Biology Labs

Cumberland H (Session II) • Demonstration (30 min.) • General Biology • HS 2C 4C

Blending hands-on exercises & digital lessons, instructors can demonstrate clear objectives, reach many learning styles, & review procedures. Students can repeat & manipulate lessons off-campus, tailoring the learning experience to individual needs.

Shanthi Murali, **Barbara Sepdham**, **Randy Malone** and **Colleen Ambler-Biles**, DCCCD, Farmers Branch, TX

Fast Plants sc: A New Generation of Resources for Hands-on Education in Genetics, Evolution, and Genomic Sciences

Cumberland I • Demonstration (75 min.) • Genetics • HS 2C 4C

Fast Plants is a novel analog of *Brassica rapa*. We will introduce the collection of mutants and complementary PCR-based resources used to link Mendelian & molecular genetics.

Scott Woody (swoody@wisc.edu), University of Wisconsin-Madison, Madison, WI

Ride Tall into the Biology Redesign with Two Texas Teachers

Cumberland J • Hands-on Workshop (75 min.) • General Biology • HS

Veteran teachers return to NABT with new and retooled activities for first year Biology and AP® Biology. The emphasis of this workshop will be on interactive challenges to motivate students and encourage higher level thinking.

Sandra Coffey, St. Agnes Academy, Houston, Texas, Houston, TX and **Eileen Newland**, Cy-Fair ISD, Cypress, TX

Creating Skills-Based Assessments in Biology

Cumberland K • Hands-on Workshop (75 min.) • Curriculum Development/Supervision • JH HS

Skills-based assessments provide authentic opportunities for students to demonstrate mastery of biological concepts and scientific skills. Learn how to improve critical thinking and build science literacy by utilizing skills-based assessments.

Aimee Wagner (aimee.wagner@gmail.com) and **Cole Entress** (cole.entress@gmail.com), Newark Collegiate Academy, a KIPP high school, Newark, NJ

Critical Thinking Using Student-made Digital Image Databases

Cumberland L • Demonstration (75 min.) • Instructional Strategies/Technologies • HS 2C 4C

This session will demonstrate how student directed digital databases can be a critical thinking learning tool for scientific methodology and data-mining. The session will introduce digital microscopy's importance in authentic science inquiry.

Brian Shmaefsky (brian.r.shmaefsky@lonestar.edu), Lone Star College, Kingwood, TX

2:30pm – 3:45pm

Continuation AP® BIOLOGY SYMPOSIUM

Pegasus B • Special Program

Please see page 30 for full list of presenters

ASM Presents *Microbes: Evolution and Life at the Extremes*

Cotton Bowl • Symposium (75 min.) • Evolution • HS 2C 4C

The third talk presented by the American Society for Microbiology in exploring microbes in extreme environments, this session will feature Dr. Mark Schneegurt describing his research on halophilic bacteria.

Mark Schneegurt, Wichita State University, Wichita, KS

Teaching Evolution through Inquiry with Bio-Rad and Vernier (Part 2 of 2)

Reverchon A • Exhibitor Session • Evolution • HS 2C 4C

In this hands-on workshop, you will learn how easy it is to integrate evolution activities into your biology curriculum. Come try our innovative products!

Leigh Brown (biotechnology_explorer@bio-rad.com), Bio-Rad, Hercules, CA and **John Melville** (jmelville@vernier.com), Vernier Software & Technology, Beaverton, OR

BSCS Presents: Understanding the Science of Type 2 Diabetes

Gaston A • Hands-on Workshop (75 min.) • General Biology • E JH HS

Learn about the science of Type 2 Diabetes and experience activities that will help students understand and apply the science they learn in the classroom to decisions they make in life.

April Gardner and **Anne Westbrook**, BSCS, Colorado Springs, CO

SUPER TUTORS!

A Powerful Student-Run Tutoring Program!

Gaston B • Hands-on Workshop (75 min.) • General Biology • HS 4C GA

Are students struggling with science? Here's an engaging tutoring system that promotes leadership, critical thinking and accountability for all learners. Boost student achievement! Participants will receive a starter kit with videos and documents!

Gerard Vargas and **Mark Friedman**, Animo High School, Inglewood, CA

Committee Meeting: ABT Advisory Committee

Pryor-Crockett

Chair: Peter Mecca

How Do We Know? Making Scientific Arguments in Biology Class

McMillan • Paper (75 min.) • Instructional Strategies/Technologies • HS GA

Want to engage students in authentic scientific practices? Claim-Evidence-Reasoning, a framework for scientific argument developed by Kate McNeill and colleagues, is a useful scaffold! We'll share research and experiences in different settings.

Michele Cheyne (mcheyne@kstf.org), Knowles Science Teaching Foundation, Moorestown, NJ, Moorestown, NJ; **Kirstin Milks** (kirstin.milks@gmail.com), Bloomington High School South, Bloomington, IN; and **Stephen Traphagen** (stephen@mrtraphagen.com), Rolling Meadows High School, Rolling Meadows, IL

Wolbachia: Discover the Microbes Within!

Cumberland A • Hands-on Workshop (75 min.) • Microbiology & Cell Biology • HS 2C 4C

The New Pandemic!! It is estimated that 30% of the world's insects are infected with the bacterial endosymbiont, Wolbachia. Engage students in real world research as they extract

DNA, run PCR and determine the infection rate of their local insects.

Whitney Hagins, Lexington High School, Lexington, MA

Centers in the Science Classroom

Cumberland B • Hands-on Workshop (75 min.) • General Biology • JH HS

How do you put fun back into your classroom while actively engaging students in rigorous content? Classroom centers are the answer, transform your classroom into a space where students work cooperatively to acquire their own knowledge.

Kai Erquhart (ms.kajjones@gmail.com) and **Tanya Roldan** (toldan2001@yahoo.com), Chicago, IL, Chicago, IL

Strategies for Keeping Science in the Science Classroom

Cumberland C • Hands-on Workshop (75 min.) • Evolution • JH HS

Controversy in the Classroom? What to do when evolution, climate change, or other topics are viewed as controversial, without merit, and lacking evidence? The National Center for Science Education and the SETI Institute have resources for you.

Eric Miekke, National Center for Science Education, Oakland, CA and **Pamela Harman**, SETI Institute Education and Public Outreach, Mountain View, CA

Continuation: NABT BIOLOGY EDUCATION RESEARCH SYMPOSIUM

Cumberland D • Special Program

Please see page 30 for a full list of presenters.

On-line or Off-line, But On Task

Cumberland E • Demonstration (30 min.) • General Biology • GA

Biology Stations are student-centered learning areas in the classroom or lab that require

minimal effort to set up, but engage all students. Small groups work cooperatively, and utilize resource materials located at each station, including technology.

Maurice Henning (maurice.henning@email.gscollge.edu), Good Samaritan College of Nursing, Clifton, OH and **Wendy Burt** (wburt@trlsd.org), Taylor High School, North Bend, OH

River Quest Professional Development for Elementary Teachers

Cumberland E • Paper (30 min.) • General Biology • E 4C

Faculty and participants in River Quest professional development for elementary teachers will describe the funding source and general format of the program, plus provide examples of lessons learned that you can take back to your own classroom.

Andrea Bixler, Clarke University, Dubuque, IA

Stem Cells: Science and Ethics

Cumberland F • Hands-on Workshop (75 min.) • Bioethics • HS 2C 4C

Explore the scientific and ethical implications of embryonic stem cell research using hands-on, engaging activities from our popular curriculum. Receive the NIH-funded 5-lesson unit free on CD.

Jeanne Chowning (jchowning@nwabr.org) and **Joan Griswold** (jgriswold@nwabr.org), NW Association for Biomedical Research, Seattle, WA

Bioinformatics: Gene Sequences, Genetics and Phylogenetics

Cumberland G • Hands-on Workshop (75 min.) • Evolution • HS 2C 4C

Come explore bioinformatics for every biology student! We will work with teacher-created activities that first use physical traits and then genetic sequence (and BLAST) to determine phylogenetic and evolutionary relationships between animals.

Ellie Rice, Franklin & Marshall College, Lancaster, PA, and **Tara Flick**, Conestoga Valley High School, Lancaster, PA

“NABT provides the perfect blend of challenging and affirming my growth as a science educator, while empowering me to become a leader within my profession. I joyfully anticipate each issue of *The American Biology Teacher* and edition of *News & Views* because they deliver relevant and innovative information about lessons, grants, and professional opportunities. And the annual conference? Well, there's only one way I describe it to colleagues: It is my lifeblood.”

Sherry Annee

member since 1996

2:30pm – 3:45pm

continued

TECHNOLOGY IN TEXAS

Going Digital - Handling Collaborative Digital Assignments

Cumberland H • Demonstration (75 min.) • General Biology • JH HS GA

This presentation will show you how to utilize Google Applications successfully for classroom use, including Google Documents for collaborative lab reports, Google Presentations for class presentations, and Google Forms for collecting information.

Brandi Argentar (bargentar@d125.org) and **Jill Lisius** (jlisius@d125.org), Lincolnshire, IL

Genome Cache: How to Make Your Genome Walk

Cumberland I • Hands-on Workshop (75 min.) • Genetics • JH HS 4C

Using these free resources, your school can create a genome walk. Use your hallways, nature trails or practice fields to allow students to stroll through chromosomes 1 through 22, plus X and Y, while learning about genetic points of interest.

Jennifer Carden (jcarden@hudsonalpha.com) and **Madelene Loftin**, (mloftin@hudsonalpha.com), Huntsville, AL

The Next Generation Science Standards: Why Three Dimensions?

Cumberland J • Symposium (75 min.) • Instructional Strategies/Technologies • GA

This session will cover the Next Generation Science Standards through the eyes of a scientist and science educator who also served as a reviewer of the NGSS drafts. The NGSS are evolutionary standards that will require teachers to teach differently.

Kevin Niemi, University of Wisconsin, Madison, WI

Lost in Translation: Exploring Protein Synthesis with Physical Models

Cumberland K • Hands-on Workshop (75 min.) • General Biology • HS 2C 4C

Discover the translation process from mRNA to protein, using innovative physical models of the insulin gene and protein. We will present a physical model of insulin mRNA – and then translate the mRNA into the insulin protein, and consider how the protein triggers glucose uptake from the blood.

Margaret Franzen (franzen@msoe.edu), **Tim Herman** and **Shannon Colton**, MSOE CBM, Milwaukee, WI

Brainy Games: Linking Curriculum with Computer Games

Cumberland L • Hands-on Workshop (75 min.) • Neuroscience • JH HS 2C

Play a demo of Project Neuron's game *The Golden Hour* and explore the science behind brain injury. This game is being designed from the ground up to link curriculum and science education standards to gaming at home. Includes access to free materials.

Hillary Lauren, Project Neuron, Champaign, IL; **Barbara Hug** and **Donna Korol**, University of Illinois, Champaign, IL; **James Planey**, Urbana High School/University of Illinois, Urbana, IL; **Chandana Jasti** and **Kristen Talbot**, University of Illinois at Urbana-Champaign, Champaign, IL

4:00pm – 7:00pm

Exhibit Hall Reception

Marsalis Hall • Special Event

You are the guest of honor at this special reception showcasing the NABT Exhibitors. The NABT Exhibit Hall is the place to learn about the latest and greatest in technologies, programs and resources. Visit your favorite vendors and meet new ones. And make sure you're getting those freebies for your classroom and your colleagues back home!

Sponsored by **Vernier Software & Technology.**

7:00pm – 9:00pm

AP® Biology Section Reception

Pegasus A-B • Special Event

We are ready for the changes in AP® Biology. Are you? Implementing the new curriculum framework will be easier with some drinks, some appetizers, and some time with "friends" from the community you haven't met in person yet.

Sponsored by **Pearson.**

Four-Year College & University Section Reception

Reunion Ballroom A-B • Special Event

Event

Undergraduate Education Poster Session

Reunion Ballroom A-B • Special Event

See the following page for listing of poster titles and authors.

Join us for this very popular reception and poster session. This is a wonderful opportunity to grab some food, get a drink, network with colleagues, and peruse research in a relaxed setting. Well-known NABT scholars, new contributors and graduate students will all be featured.

Sponsored by **John Wiley & Sons, Inc.**

8:00pm – 10:00pm

Two-Year College Section Reception

Reunion Ballroom C • Special Event

Teaching at the community college level presents some unique challenges and the members of the NABT Two-Year College Section Community have some great ideas (and stories) they are ready to share. Come have some fun with this group of undergraduate educators.

Sponsored by **Hayden-McNeil Publishing, Inc.**

2012 Four-Year College & University Section Poster Session

POSTER TITLES AND AUTHORS

- Using Bean Beetles to Develop Research Skills and Collaboration Between Genetics Students and Non-Major Environmental Students
Elizabeth Morgan and Brian Shmaefsky, Kingwood, TX
- The Influence of Knowledge for Teaching Macroevolution on Student Knowledge of Macroevolution and Acceptance of Evolution In A Non-Majors' Biology Course*
Emily Walter and Patricia Friedrichsen, University of Missouri, Columbia, MO
- Using Leaf Morphology to Estimate Mean Annual Temperature
Stephen Saupe, St. John's University, Collegeville, MN
- Developing Global Partnerships: Relationships and Structure
John M. Moore and Gustavo Chacón, Taylor University, Upland, IN
- Community Collaboration: Marking Earth Day through a University/School Partnership
Ashley J. Campbell, West Texas A&M University, Canyon, TX
- Teaching On-line Non-major's Biology Laboratories – Lessons Learned
Joyce Phillips Hardy and Wendy Jamison, Chadron State College, Chadron, NE
- Utilizing Service Learning in an Undergraduate Cell Biology Course to Raise Awareness of Scientific Literacy in the Community
Mark Craven, Catherine Cushny, and Janine Bartholomew, Carlow University, Pittsburg, PA
- Group Based Cohorts as a Means of Enhancing Academic Performance Within a Community College Setting*
Stephen Smith, Olive Harvey College, Chicago, IL
- The Effect of Educational Field Trips to Professional Research Labs on Students' Understanding of NOS
Dina Tsybulska and Jeff Dodick, The Hebrew University of Jerusalem, Jerusalem, India
- Using BEN (the BioSci Education Network) as a Teaching and Mentoring Tool"
Laurel Roberts and Ted Gobillot, University of Pittsburgh, Pittsburgh, PA
- Combinational PCR to Produce a Flexible Introductory Gel Electrophoresis Genotyping Lab Exercise*
Tess Rasmussen and Steven Christenson, Brigham Young University – Idaho, Rexburg, ID
- A Study of the CD36 Gene Investigating the AA Genotype
Rebecca Robbins, SUNY Plattsburgh, Plattsburgh, NY
- Sex Determination of Juvenile and Unknown Maya Skeletal Remains*
Mackenzie Kilkeary and Nancy Elwess, SUNY Plattsburgh, Plattsburgh, NY
- Teaching Breathing Process using Model-Based Inquiry Instruction
Vivien Mweene Chabalengula and Frackson Mumba, Southern Illinois University, Carbondale, IL
- Effect of Shadow Curriculum in a High School Biology Classroom*
Ian Nicolaides and Vivien Mweene Chabalengula, Southern Illinois University, Carbondale, IL
- An Investigation of the Presence of the Short and Long Allele of the promoter region of the serotonin transporter, 5-HTTLPR, and depression in college students
Shaneice Nettleford, SUNY Plattsburgh, Plattsburgh, NY
- BEST Practices: Continued Field-Specific Training for Teachers Translates to Higher Gains for Students*
Hilary Franke, Priya DasSarma, and Shiladitya DasSarma, Towson University Center for STEM Excellence, Baltimore, MD
- Using Online Quizzing to Increase Information Retrieval in Introductory (Majors) Biology
Rebecca Orr and Shellene Foster, Collin College, Plano, TX
- Testing Frogs from the Lake Champlain Basin For the Presence of the Chytrid Fungus and Purveying Their Genetic Diversity*
Christopher Petrillo, Champlain Valley Union High School, Williston, VT
- DNA Barcoding in Fungi (Mushrooms); the Establishment of a Genetic Database within the Lake Champlain Basin*
Siobhan Levere, SUNY Plattsburgh, Plattsburgh, NY
- Changing Foundations of Human Physiology Lab Students' Conceptions of the Nature of Science through Research and Reflection*
Lori Ihrig and Barbra Krumhardt, Iowa State University, Ames, IA
- A Literature Review: Student Understanding of Cyclic Representations
Brian Pinney and Brian Hand, University of Iowa, Iowa City, IA
- Investigation of the Serotonin-Transporter-Linked Polymorphic Region (5HTTLPR) with Depressive Tendencies in First-Year College Students*
Philip Martocchia, SUNY Plattsburgh, Plattsburgh, NY
- Phylogenetic Research Using Mitochondrial DNA through the amplification and sequencing of the cytochrome b gene of various species*
Kade Sewell, SUNY Plattsburgh, Plattsburgh, NY
- Student Learning at Ecology Camp*
Max Mossler and Alan Berkowitz, Arizona State University, Tempe, AZ
- Filming Field Study on the Fly: Student-Produced Mobile Media Brings the Tropics to Pennsylvania
Karen Kackely-Dutt and Eileen M. Grodziak, Penn State University, Center Valley, PA
- Precipitating Knowledge: Physical Assembling of Concept Cards into Maps as a Way of Probing Students' Understanding of DNA Structure*
Anveshna Srivastava and Sanjay Chandrasekharan, Homi Bhabha Center for Science Education, Mumbai, India
- Rethinking Biology Lab: Student-Produced Mobile Media Lab Demonstrations
Eileen M. Grodziak and Karen Kackely-Dutt, Penn State University, Center Valley, PA
- Community College Undergraduate Research Initiative
James Hewlett and Kellie Aitchison, Finger Lakes Community College

* denotes entries for the Student Poster Competition.

“...there's no better source for professional development in biology education. The annual conference, *The American Biology Teacher*, and conversations with colleagues across the country have profoundly improved my teaching practice. There's no other organization with as much collective wisdom and passion for their discipline than NABT.”

Cindy Gay
member since 2006