

Mar 6th, 8:00 AM - 4:00 PM

## Education for a Global future conference program

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Friday, March 6, 2009 ■ UNLV Student Union



## *Welcome to the second* **UNLV Urban Sustainability Conference!**

In 2006 a grassroots effort emerged among faculty and professional staff at UNLV to reach out and partner with the community to find workable solutions to the challenges facing the Las Vegas metropolitan area and the surrounding region. With a predicted local population of 4 million in 2036 and 72% of Nevadans now living in the Las Vegas metro area, we have become a very urban state that faces many challenges if we are to achieve a sustainable community. These challenges include economic growth and diversification, labor training, affordable housing, renewable energy, water supply, air quality, traffic and congestion, security and safety, health care, immigration, the best use of land, public places, recreation, and more.

UNLV is now playing a major role in establishing a dialogue with the Las Vegas community on all of the interrelated dimensions of sustainability, including environmental, economic, and social/cultural sustainability. We have already hosted several major meetings and summits in partnership with Senator Harry Reid and the Center for American Progress at the National Clean Energy Summit in August 2008, and with the Brookings Institution on its Mountain Megs Report and its newly unveiled initiative to create Energy Discovery-Innovation Institutes in partnership with U.S. colleges and universities.

The focus of our Second Annual Urban Sustainability Conference is the highly relevant topic of integrating sustainability into K-16 education. Our keynote and invited speakers will cover:

- Current initiatives in K-12 and higher education
- Role of sustainability and climate change in General Education
- Development of sustainability curricula in specific disciplines or fields of study
- Trans-disciplinary approaches to sustainability education
- Informal, extracurricular, and service-learning sustainability initiatives
- Sustainability curricula in K-12
- Articulation in sustainability education within NSHE and with CCSD
- Facilitating attitudinal and behavioral change in students
- What employers are looking for in students seeking sustainability-related careers

We appreciate your time and commitment in attending this conference and hope you enjoy the keynote lectures, concurrent sessions, and employer panel.

**Cover Artwork:** Blue Moon, Acrylic Painting, 4'x5' by James B. Pink, Professor Emeritus, UNLV Art Department  
Printed on recycled paper.

# Conference Schedule

8:00 a.m. **Registration Check-in** • Student Union first floor

8:00–  
8:30 a.m. **Continental Breakfast** • Student Union Ballroom

8:30 a.m. **WELCOME** • Student Union Ballroom  
Executive Vice President and Provost Neal Smatresk  
Senator Harry Reid (taped)

8:45 a.m. **PLENARY SESSION** • Student Union Ballroom  
Keynote Speakers: Kevin Coyle, Vice President for Education and Training, National Wildlife Federation  
Roberta M. Johnson, Director of Education and Outreach, University Corporation for Atmospheric Research, and Executive Director, National Earth Science Teachers Association

10:00 a.m. **Networking Break**

10:30 a.m.–  
Noon **MORNING CONCURRENT TRACK 1**  
**WHAT DOES IT MEAN FOR K-12 STUDENTS TO THINK ABOUT SUSTAINABILITY IN THE WESTERN U.S.?**  
**Moderator Kent Crippen**  
Student Union Room 207  
Ellen Ebert - Using the STS/EEE Model in 6-12 Curriculum to Understand the Sustainability Issues Related to the Colorado River System  
(repeats Afternoon Concurrent Session #1)  
Rebecca Reichenbach – CCSD Action Research: Understanding the Urban Heat Island Effect  
(repeats Afternoon Concurrent Session #1)  
Allison Brody, Amy Page – Environmental Literacy as an Indicator for Urban Sustainability  
Marcel Parent, Signa Gundlach – Sustainability Education at the Springs Preserve: Broad Strokes and Targeting Standards

**MORNING CONCURRENT TRACK 2**  
**CREATION AND CORRECTION OF MYTHS ABOUT GLOBAL WARMING**  
**Moderator Robert Futrell**  
Student Union Room 211  
Matthew Lachniet – Global Warming Misconceptions and Myths: Barriers and Opportunities for Communicating Climate Change Science to a Non-scientific Audience  
Gale Sinatra, CarolAnne Kardash, Gita Taasobshirazi, Doug Lombardi – College Students’ Understanding of and Reactions to Global Warming  
E. Michael Nussbaum – Global Warming and Middle School: An Argument-Based Intervention  
Doug Lombardi – Students’ Perceptions about the Plausibility of Human Induced Climate Change

**MORNING CONCURRENT TRACK 3**  
**WEATHERING CLIMATE CHANGE IN THE CURRICULUM**  
**Moderator Barbara St. Pierre Schneider**  
Student Union Room 213  
Andy Jorgensen – Creating a Learning Community for Solutions to Climate Change

Amy Northrup, David Hassenzahl – Climate Education Courses in the United States

David James, Tom Piechota, Jeff Jablonski – Sustainability and General Education

12:00 p.m. **Lunch** • Student Union Ballroom  
Keynote Speaker: Dr. Geoffrey Chase, Dean of Undergraduate Studies, San Diego State University

1:15–  
2:45 p.m. **AFTERNOON CONCURRENT TRACK 1**  
**SUSTAINABILITY IN THE K-16 CLASSROOM**

**Moderator Gale Sinatra**  
Student Union Room 207  
Ellen Ebert – Using the STS/EEE Model in 6-12 Curriculum to Understand the Sustainability Issues Related to the Colorado River System

Rebecca Reichenbach – CCSD Action Research: Understanding the Urban Heat Island Effect

Nick Pretasky – Energy...Catch the Buzz!

Dale Walsh – Sustaining Indoor Environmental Quality in the Classroom to Improve Learning

**AFTERNOON CONCURRENT TRACK 2**  
**THE “STATE” OF CLIMATE CHANGE EDUCATION**

**Moderator Scott Mensing**  
Student Union Room 211  
David Hassenzahl, Michael Collopy, Scott Mensing – NSHE EPSCoR Climate Infrastructure Grant Education Component  
Paul Buck – A Team Teaching Approach to Improving Climate Change Education in Nevada Middle Schools  
Donica Mensing, Hans-Peter Plag, Jen Huntleysmith – Assessing the State of Sustainability Education: A Case Study of Faculty Efforts at the University of Nevada, Reno

**AFTERNOON CONCURRENT TRACK 3**  
**GREEN CURRICULA AT UNLV**

**Moderator Carolyn Yucha**  
Student Union Room 213  
Tom Jones, Ken Teeters – Incorporating Sustainability into a Hospitality Management Curriculum  
Barbara St. Pierre Schneider, Nancy Menzel, Lori Candela, Yu Xu, Sally Miller – Integrating Urban Sustainability into a Doctoral Nursing Program  
Scott Nowicki – Commuting to UNLV: The Daily Lesson and Action in Sustainability

2:45 p.m. **Networking Break**

3:00 p.m. **EMPLOYER PANEL** • Student Union Ballroom  
Private Sector – Greenspun Media Group, Harrahs Corporation, NV Energy, Acciona Solar, Lucchesi-Galati Architects  
Public Sector – City of Las Vegas, Southern Nevada Water Authority, Regional Transportation Commission of Southern Nevada, Southern Nevada Health District

4:00 p.m. **Mixer/Reception**  
Student Union Ballroom





## Meet Your Keynote Speakers



**Kevin Coyle**  
**Vice President for Education and Training**  
**National Wildlife Federation**

As Vice President for Education and Training at the National Wildlife Federation, Kevin Coyle is responsible for Campus Ecology, Climate Classroom, climate training for adults leaders, and the Federation's award-winning

children's magazines.

Prior to joining NWF, Mr. Coyle was President of the National Environmental Education & Training Foundation and also previously served as President of American Rivers, the nation's principal river conservation organization. Early in his career, Mr. Coyle spent 10 years at the U.S. Department of the Interior, where he was Assistant Regional Director for State and Local Programs for the National Park Service's Northeast Office. There he directed the Land and Water Conservation Fund Grants program and natural resource planning programs.

In August 2008, the National Wildlife Federation issued A National Report Card on Sustainability in Higher Education. This comprehensive study, conducted annually since 2001 by NWF and Princeton Survey Research Associates International, reviews trends and new developments in environmental performance and sustainability at 1,068 institutions. The report analyzes collective trends in areas of management, operations, and academics.

### **Please note....**

- Wear your name badge at all times for the benefit of your fellow participants
- Turn off or silence cell phones, pagers, and BlackBerries during conference sessions
- Direct questions/lost and found/general issues to conference staff
- Enjoy conversations and connections among the diverse group of participants
  
- All sessions will be held in the UNLV Student Union on the second floor
- Emergency contact numbers: 702-523-4259 (telephone) or 702-895-1129 (fax)
- If you forgot to place on your vehicle's dashboard the parking permit previously emailed to you, please visit the registration desk for an extra permit
- If you should receive a parking ticket, please provide it to a conference staff member or mail it to:  
Division of Research and Graduate Studies  
University of Nevada, Las Vegas  
4505 S. Maryland Parkway, Box 451092  
Las Vegas NV 89154-1092



**Roberta Johnson, Ph.D.**  
**Director of Education and Outreach, University Corporation for Atmospheric Research; Research Scientist, High Altitude Observatory, National Center for Atmospheric Research; Executive Director, National Earth Science Teachers Association**

Dr. Roberta Johnson is Executive Director of the National Earth Science Teachers Association and Chair of the American Geophysical Union's Committee on Education and Human Resources. She has extensive experience advising NASA, NSF, and professional societies on education, outreach, uses of cyber-infrastructure for education, and diversity and serves on numerous advisory boards for projects in these areas. Before joining UCAR and NCAR, she was a research scientist at the University of Michigan Space Physics Research Laboratory from 1988-2000 and the director of the NASA-funded Michigan Space Grant Consortium from 1995-2000. Formerly, she was a research physicist at SRI International in Menlo Park, California (1987-1989).

As director of the UCAR Education and Outreach Program, Roberta oversees services and resources for students, educators, and the public, including professional development programs for geoscience educators, web resources for students, educators, and the general public, event programming, exhibit development, and opportunities to increase the diversity of geoscience researchers.

She has a Ph.D. in Geophysics and Space Physics from UCLA and has published more than 30 papers in the area of upper mesosphere and lower thermosphere research as well as on educational programs.

## Meet Your Conference Hosts



**Geoffrey Chase, Ph.D.**  
**Dean, Division of**  
**Undergraduate Studies,**  
**San Diego State University**

Dr. Geoffrey Chase attended Ohio Wesleyan University, receiving the BA in English in 1971. He also holds an MAT from Miami University (Ohio) and the AM in English from Boston College.

After receiving his Ph.D. in

American literature from the University of Wisconsin-Madison in 1981, he taught for 11 years in the School of Interdisciplinary Studies at Miami University of Ohio. He joined Northern Arizona University in 1992 as the Director of English Composition. At NAU, he redesigned the composition curriculum to give it an environmental focus and became a leader of the Ponderosa Project, a faculty development project aimed at helping faculty from throughout the university integrate issues of environmental sustainability into their courses. The Ponderosa Project has since served as a faculty development model that has been instituted at other colleges and universities nationally.

Dr. Chase was a Fulbright Scholar in Turku, Finland, from 1990-1991. He joined San Diego State University in January 2002 as the Dean of the Division of Undergraduate Studies. In 2004 he co-edited *Sustainability on Campus: Stories and Strategies for Change*, which was published by MIT Press. He currently serves on the Board for the American Council of Academic Deans (ACAD) and the Board of the Association for the Advancement of Sustainability in Higher Education (AASHE). He also co-chairs the Proposal Review Committee for the Western Association of Schools and Colleges (WASC). His chief academic interests include student learning, undergraduate curricula, and sustainability in higher education.

**Dr. Neal J. Smatresk**

Neal J. Smatresk was appointed in June 2007 as UNLV's executive vice president and provost. He most recently served as vice chancellor for academic affairs at the University of Hawaii at Manoa. Smatresk received his Ph.D. in zoology from the University of Texas at Austin in 1980. Following post-doctoral training at the University of Pennsylvania School of Medicine, he joined the University of Texas-Arlington (UTA) department of biology in 1982. In his 22 years at UTA, he served as chair of biology and later dean of science, until his appointment as the chief academic officer at the University of Hawaii at Manoa in 2004. During his tenure, the university entered the ranks of the top 25 federally funded institutions, gained three National Academy of Science members, and received recognition from the Chinese Ministry of Education as a Confucius Institute, an honor shared by only 11 other U.S. institutions. He has received a number of teaching awards, and his research in cardiorespiratory physiology has resulted in over 50 papers and book chapters, as well as grants from the National Science Foundation and National Institutes of Health.

**Dr. Ronald W. Smith**

Ronald Smith was named founding executive director of the UNLV Office of Urban Sustainability Initiatives in August 2007. He also serves as Vice President for Research and Dean of the Graduate College and as an institutional representative for the UNLV-Midtown UNLV project. His university administrative experience spans more than 30 years, including having previously served as dean of the Graduate College for 11 years, interim provost for two years, director of three research centers, assistant dean of the College of Liberal Arts, and chair of the Department of Sociology on four separate occasions. Dr. Smith received his Ph.D. at Washington State University, specializing in urban sociology, organizational performance and development, and evaluative research, and his most recent research and teaching interests have focused on architectural sociology and community sustainability. He works with several local architects, advising on social design projects. He has authored three books and more than 30 journal articles.





			Concurrent Sessions
	<b>STUDENT UNION ROOM 207</b>		
	<b>MORNING TRACK ONE - Moderator Kent Crippen</b>		<b>MORNING</b>
	<b>WHAT DOES IT MEAN FOR K-12 STUDENTS TO THINK ABOUT SUSTAINABILITY IN THE WESTERN U.S.?</b>		<b>CREATION AND COMMUNICATION</b>
<b>TIME</b>	<b>SESSION TITLE</b>	<b>Presenter</b>	<b>SESSION</b>
10:30-10:50	Using the STS/EEE (Science, Technology, Society, Environment, Economics and Ethics) Model in 6 - 12 Curriculum to Understand the Sustainability Issues Related to the Colorado River System	Ellen Ebert	Global Warming Misconceptions and Opportunities for Communication Science to a Non-scientific Audience
10:50-11:10	CCSD Action Research: Understanding the Urban Heat Island Effect	Rebecca Reichenbach	College Students' Understanding of Global Warming
11:10-11:30	Environmental Literacy as an Indicator for Urban Sustainability	Allison Brody & Amy Page	Global Warming and Middle School Based Intervention
11:30-11:50	Sustainability Education at the Springs Preserve: Broad Strokes and Targeting Standards	Marcel Parent & Signa Gundlach	Students' Perceptions about Climate Change
Noon-1:15	<b>LUNCH - STUDENT UNION ROOM 207</b>		
	<b>STUDENT UNION ROOM 207</b>		
	<b>AFTERNOON TRACK ONE - Moderator Gale Sinatra</b>		<b>AFTERNOON</b>
	<b>SUSTAINABILITY IN THE K-16 CLASSROOM</b>		<b>THE "STANDARD"</b>
<b>Time</b>	<b>SESSION TITLE</b>	<b>Presenter</b>	<b>SESSION</b>
1:15-1:35	Using the STS/EEE (Science, Technology, Society, Environment, Economics and Ethics) Model in 6 - 12 Curriculum to Understand the Sustainability Issues Related to the Colorado River System	Ellen Ebert	NSHE EPSCoR Climate Infrastructure Component
1:35-1:55	CCSD Action Research: Understanding the Urban Heat Island Effect	Rebecca Reichenbach	A Team Teaching Approach to Climate Change Education in Nevada
1:55-2:15	Energy... Catch the Buzz!	Nick Pretasky	Assessing the State of Sustainability Study of Faculty Efforts at UNLV
2:15-2:35	Sustaining Indoor Environmental Quality in the Classroom to Improve Learning	Dale Walsh	Audience Discussion
2:45-3:00	<b>NETWORKING BREAK</b>		

## PRESENTATION ABSTRACTS

Listed alphabetically by lead presenter

### **Environmental Literacy as an Indicator for Urban Sustainability**

Allison Brody and Amy Page, UNLV Public Lands Institute

For sustainability initiatives to be successful, citizens must have the knowledge, action skills, and motivation to support and participate in these initiatives. In other words, Urban Sustainability will not be successful unless our citizens are environmentally literate. The responsibility for creating this "environmentally literate" citizenry should fall in large part to educators, both in the formal and non-formal sectors. Therefore, these educators need a clear understanding of the specific knowledge and action skills that our citizens need. In this session, we will explore the competencies that citizens need to engage in sustainability practices in Nevada, and how educators can incorporate these competencies into their curricula and programs.

### **A Team Teaching Approach to Improving Climate Change Education in Nevada Middle Schools**

Paul Buck, Nevada State College and Desert Research Institute

The NSF EPSCoR RII Climate Change Infrastructure Award includes a small but important effort to build educational infrastructure among in-service middle school science, math, and English teachers at six Nevada middle schools. We will focus on whole school or whole grade-level approaches, often referred to as a "professional learning community" or "community of practice" model, engaging a cohort of teachers at selected schools. Using specific elements of Nevada climate change research themes particularly relevant to each local community, this project will create a magnet school in one of the proposed themes at each school. The themes will be guided by the Nevada state science teaching framework and national science teaching standards. Target schools have student populations 50% or more minority, and the proportion of science classes taught by teachers considered not highly

Sessions At A Glance			
STUDENT UNION ROOM 211		STUDENT UNION ROOM 213	
TRACK TWO - Moderator Robert Futrell		MORNING TRACK THREE - Moderator B. Schneider	
CORRECTION OF MYTHS ABOUT GLOBAL WARMING		WEATHERING CLIMATE CHANGE IN THE CURRICULUM	
SESSION TITLE	Presenter	SESSION TITLE	Presenter
Barriers and Myths: Barriers to Communicating Climate Change to the Audience	Matthew Lachniet	Creating a Learning Community for Solutions to Climate Change	Andy Jorgensen
Understanding of and Reactions to Climate Change	Gale Sinatra, CarolAnne Kardash, Gita Taasoobshirazi, Doug Lombardi	Climate Education Courses in the United States	Amy Northrup & David Hassenzahl
School: An Argument-	E. Michael Nussbaum	Sustainability and General Education	David James, Tom Piechota, Jeff Jablonski
Assessing the Plausibility of Human-Induced Climate Change	Doug Lombardi	Audience Discussion	
STUDENT UNION BALLROOM			
STUDENT UNION ROOM 211		STUDENT UNION ROOM 213	
AFTERNOON TRACK TWO - Moderator Scott Mensing		AFTERNOON TRACK THREE - Moderator Carolyn Yucha	
THE "EFFECT" OF CLIMATE CHANGE EDUCATION		GREEN CURRICULA AT UNLV	
SESSION TITLE	Presenter	SESSION TITLE	Presenter
Infrastructure Grant Education	David Hassenzahl, Michael Collopy, Scott Mensing	Incorporating Sustainability into a Hospitality Management Curriculum	Tom Jones & Ken Teeters
Pathways to Improving Climate Change Education in Middle Schools	Paul Buck	Integrating Urban Sustainability into a Doctoral Nursing Program	Barbara St. Pierre Schneider, Nancy Menzel, Lori Candela, Yu Xu, Sally Miller
Sustainability Education: A Case Study from UNLV	Donica Mensing, Hans-Peter Plag, Jennifer Huntleysmith	Commuting to UNLV: The Daily Lesson and Action in Sustainability	Scott Nowicki
		Audience Discussion	
K - BALLROOM RECEPTION AREA			



qualified is above the school district mean. The use of graduate students to act as mentors and content links to in-service teachers will help develop a science research community that includes NSHE and middle school teachers working together.

### **Using the STS/EEE (Science, Technology, Society, Environment, Economics and Ethics) Model in 6 - 12 Curriculum to Understand the Sustainability Issues Related to the Colorado River System**

Ellen K. Ebert, Southern Nevada Regional Professional Development Program

Beginning in 1982, the National Science Teachers Association called for curriculum designers to develop materials that demonstrate the interconnectedness among science, technology and societal issues while presenting both positive and negative influences. This session will focus on using the STS/EEE learning model to design curriculum for secondary science that emphasizes sustainability issues focused on the

Colorado River system. The presentation will outline the essential features of the STS/EEE model, then engage participants in applying the model in a novel situation.

### **NSHE EPSCoR Climate Infrastructure Grant Education Component**

David M. Hassenzahl, UNLV Department of Environmental Studies  
Michael Collopy, University of Nevada, Reno  
Scott Mensing, University of Nevada, Reno

The Nevada System of Higher Education has received funding from the National Science Foundation EPSCoR program to develop climate change research infrastructure. This session will present information on what the Education Component is doing and plans to do, and solicit ideas on future climate education efforts for NSHE. Education is one of six components of this grant and will support NSHE efforts on: *Undergraduate research*. Each school year and summer, funds are available to undergraduates at any NSHE institution





of higher education to do research related to climate change. *Graduate research.* A number of competitive graduate research fellowships are available to graduate students at UNLV and UNR. Students propose research supported by at least two faculty mentors. *Curriculum development.* A graduate student will work with the Component Lead to do research on climate education norms and methods across the United States and in Nevada. Part of this will be in anticipation of a 2010 NSHE Climate Education Conference, which will establish existing courses and programs, identify gaps, and propose course and program activities. *K-12.* The K-12 program will provide school-wide climate change education to middle school teachers in at-risk middle schools in Clark County and Washoe counties. A new cohort of teachers will be supported each year.

### ***Sustainability and General Education***

David James; Thomas Piechota; Jeff Jablonski  
University of Nevada, Las Vegas

The topics of sustainability, environmental literacy, and climate change are becoming part of many university educational programs. This presentation will address some of the national programs that are incorporating sustainability and climate change. In addition, the presenters will give an update on the revisions being proposed to the UNLV General Education core, which may include incorporating sustainability into an educational outcome related to ethics and sustainability as dimensions of responsible citizenship.

### ***Incorporating Sustainability into a Hospitality Management Curriculum***

Thomas Jones and Ken Teeters, UNLV William F. Harrah College of Hotel Administration

For the past 15 years, faculty members in the Harrah College of Hotel Administration who teach Facilities Management (HMD 395) have incorporated a sustainability management component in this required course. The concepts of sustainability and global climate change are introduced through readings and multi-media. The concept of Triple Bottom Line is presented and is applied to almost every component in the course. Students are assigned a variety of semester-long service-learning projects that incorporate these concerns. This session will feature slides from past activities and will show how to establish similar sustainability components in other hospitality management programs. There will also be a short discussion on how the Harrah Hotel College is currently expanding and coordinating sustainability throughout its curricular and extracurricular activities.

### ***Creating a Learning Community for Solutions to Climate Change***

Andy Jorgensen, National Council for Science and the Environment

The Climate Solutions Committee of the Council of Environmental Deans and Directors (CEDD) has proposed the creation of a learning community that will develop curricular content on solutions to anthropogenic climate change by drawing on the best available research on the phenomenon, coupled with the most effective pedagogical methods. The goal is to transform academic education about climate change from the current emphasis on physical and biological science to

an interdisciplinary enterprise that includes mitigation and adaptation. We propose to use a community-building process to produce an adaptive virtual tool chest of curricular resources, methods, and experiences that can be used by educators at a variety of levels, focused on how to teach about climate solutions in general education and courses for science majors. The goal is to equip college students not just to diagnose problems but to give them the capacity to address and fix them.

### ***Global Warming Misconceptions and Myths: Barriers and Opportunities for Communicating Climate Change Science to a Non-Scientific Audience***

Matthew S. Lachniet, UNLV Department of Geoscience

Opinions on an anthropogenic influence in global warming abound. Within the non-scientific public, the strength of one's opinion commonly seems to be in inverse proportion to their knowledge of climate science. One reason for this disconnect between reality and opinion is the persistence of many climate change myths in popular knowledge of global warming. These myths are regularly propagated in popular media and internet blogs, some of which appear to be driven more by ideology than a quest for truth about Nature. In the past, the desire to provide balance in media coverage of global warming at the expense of scientific accuracy has handed the soapbox to many with minority viewpoints that are not supported by all of the available scientific evidence. However, many of these myths contain an element of reality but have been misunderstood (at best) by the general public and misappropriated (at worst) by interest groups on all sides of the ideological spectrum. This presentation will outline some of the common myths on global warming and how they can be used as opportunities in a teaching environment to enhance students' understanding of global warming and climate science.

### ***Students' Perceptions about the Plausibility of Human-Induced Climate Change***

Doug Lombardi, Southern Nevada Regional Professional Development Program and Graduate Student, UNLV Department of Educational Psychology

Students can develop robust misconceptions when encountering complex phenomena such as global climate change. For example, students cite short-term and local weather events as evidence to support or refute long-term changes, and thereby display a fundamental misunderstanding about the distinctions between weather and climate. This confusion may impact perceptions of plausibility about scientific statements that implicate humans in worldwide increases in global temperatures and widespread melting of snow and ice. Additionally, the confusion between weather and climate may be related to a fundamental lack of understanding about deep time, a concept that spans several scientific content areas. This presentation will describe an ongoing study involving undergraduate students enrolled in introductory geoscience and geography courses. Currently, students are completing three surveys examining the relationships between student understanding of deep time and their confusion about the distinctions between weather and climate, as well as how these levels of understanding influence perceptions about the plausibility of human-induced global climate change. This presentation will highlight preliminary results.

### ***Assessing the State of Sustainability Education: A Case Study of Faculty Efforts at the University of Nevada, Reno***

Donica Mensing, UNR School of Journalism  
Hans-Peter Plag, UNR Nevada Bureau for Mines and Geology & Seismological Laboratory  
Jen A. Huntleysmith, UNR Academy for the Environment

The University of Nevada, Reno established a Sustainability Committee in 2008, one goal of which is to strengthen the focus of the undergraduate curriculum on sustainability. In the process of implementing this goal, a faculty working group has discussed and come to agreement on several critical issues, including definitions, participation, methods, and culture. Discussion also led to recognition of a spatial component of sustainable development, in addition to the often referred to temporal component, and addressed the implicit ethical obligations that arise in considering these aspects of sustainability. Participation in the working group has been guided by the desire to be as cross-disciplinary as possible, explicitly including faculty from every college, on the understanding that sustainability naturally concerns almost all disciplines and areas of study. The initial method chosen by the committee to collect data is a survey of both faculty and undergraduate students, to develop a baseline on which to assess the current coverage of sustainability issues by the undergraduate curriculum. A secondary goal is to assess and compare the strength and direction of personal attitudes about sustainability issues. Discussions have also stressed the need for developing a culture on campus that values sustainability as a practice and subject of inquiry. Efforts to address cultural, administrative, attitudinal, and practical barriers to improved teaching on these issues will also be discussed.

### ***Climate Education Courses in the United States***

Amy Northrup and David M. Hassenzahl,  
UNLV Department of Environmental Studies

Climate change is becoming an increasingly common topic of courses at institutions of higher education across the United States. However, the literature on appropriate and effective climate education praxis is limited. This session presents early findings on, and solicits ideas about, how best to proceed with an evaluation of climate education courses and programs. The first stage of this research is the development of a database of climate education syllabi. It is a non-random sample, but should represent the range of courses being offered and can be used to assess what topics are being covered, at what institutions and program, and at what academic level.

### ***Commuting to UNLV: The Daily Lesson and Action in Sustainability***

Scott Nowicki, UNLV Department of Geoscience

There are a number of programs operating in Las Vegas that have the look and feel of community efforts aimed at making life and business more sustainable, such as recycling, alternative energy, and trip reduction programs, but a serious effort is needed to gauge their effectiveness and plan for further development of these programs. The transportation system is an example of a potentially significant decrease in greenhouse gas emissions, decrease in overall system costs, and increase in quality of life for residents. The Regional Transportation Commission's plans for development of a comprehensive bike network, transit, and alternative mode integration are only likely to be successful if travel

habits are viewed against the backdrop of the complex social/physical layout of the city. Participants in UNLV's 400/600 GIS course are taking a systematic look at the way we use the transportation system in Las Vegas, as well as the physical layout and limitations of the bike and pedestrian network. Sociology students are focusing on the economic and social characteristics of the bike and public transportation system, while Geoscience students are mapping discrepancies between the publicly available map and the streets network. Using student researchers, these components are being brought together to discern what factors are limiting the Las Vegas metropolitan area from providing a sustainable way for people to get around.

### ***Global Warming and Middle School: An Argument-Based Intervention***

E. Michael Nussbaum, UNLV Department of Educational Psychology

As part of a semester-long intervention to teach middle school students to critically evaluate arguments, 60 sixth- and seventh-graders from a Las Vegas charter school in the Clark County School District discussed issues surrounding global climate change. The presentation will first describe the argument-based intervention used with the students and its effect on attitude change. Most students became accepting of the existence of global climate change and the need to develop alternative modes of transportation. The intervention also provided students with some opportunity to learn about science, politics, geography, and economics in an integrated way, as well as an opportunity to develop critical and creative thinking. Second, the overall findings of the research study will be presented, concluding that the skill of "weighing values" may be a productive one to teach to middle school students. Third, some misconceptions that students retained will be described so that future instructional efforts may address them.

### ***Sustainability Education at the Springs Preserve: Broad Strokes and Targeting Standards***

Marcel Parent and Signa Gundlach, Springs Preserve

Sustainability is a rather unwieldy and challenging area in education. From the broad but vague concepts defining it, to the innumerable sectors of human activities in which it applies, learning about sustainability is at the same time wonderfully simple and terribly complex. This presentation will introduce the participants to some of the approaches taken at the Springs Preserve to make learning about sustainability an engaging experience that will impact future behavior.

### ***Energy...Catch the Buzz!***

Nick Pretasky, Sierra Nevada Journeys

Are you looking to get your students up and moving, discovering energy, and developing critical thinking skills to make decisions about their personal energy use? The topic of energy is a growing concern in our society. It is imperative that students are provided with opportunities to discover the role we play in how our energy is created and consumed. This session is designed for formal and non-formal educators with tools and activities to help students in grades PreK-8 learn about their relationship with energy and investigate the environmental issues related to energy's role in society.





### ***CCSD Action Research: Understanding the Urban Heat Island Effect***

Rebecca Reichenbach, Western High School, Las Vegas, NV

Due to the unique placement of Western High School within a concrete and asphalt island and a resulting construction project to rebuild it, a group of science teachers from Western High became interested in how the new construction would affect the urban heat island footprint of their school. A student project was developed to track and document the construction process over a two-year timeframe. The participating teachers used action research to study the impact of the project on their teaching practice and student learning. Three inquiry-style laboratory activities were created to teach students about heat concepts and the effect of heat islands. A misconceptions survey, along with student journals, were used as data sources for determining changes in student understanding. Results show significant conceptual change in the grade 9 students, with less significant change for the older student population. This presentation will describe the research context, process, and its impact on participating students and teachers.

### ***College Students' Understanding of and Reactions to Global Warming***

Gale M. Sinatra; CarolAnne Kardash; Gita Taasooobshirazi; Doug Lombardi, UNLV Department of Educational Psychology

The principles underlying global climate change involve a complex interconnection between many scientific concepts that are difficult for students to understand. This study examined whether persuasive texts would impact readers' willingness to take mitigative action to reduce the impacts of human-induced climate change. College students participating in the study were randomly assigned to read a persuasive text about global warming or the same text accompanied by a persuasive image. Both groups showed statistically significant increases in their knowledge about global warming and their willingness to take action to reduce its effects. This research demonstrates that persuasive text can produce not only change in students' thinking about a controversial topic like global climate change, but may also promote a willingness to take action. This is significant because in the case of this topic, a change in students' knowledge may not be a sufficient criterion for successful learning. It may be as important to promote willingness in future generations to take efforts to reduce their individual impact on the environment.

### ***Integrating Urban Sustainability into a Doctoral Nursing Curriculum***

Barbara St. Pierre Schneider; Nancy Menzel; Lori Candela; Yu Xu; Sally Miller, UNLV School of Nursing

According to the World Commission on Environment and Development (1987), people "are the ultimate resource" of sustainability, but to be effective people must be physically and mentally healthy. However, threats to health are of a major concern with global urban population growth and natural and man-made environmental hazards. The most economical and successful approach to counteract these threats is to promote and protect the health of people residing in the urban environment. Nurses have a rich history of working with groups and individuals in diverse urban environments on a wide range of health issues, and they are well positioned to play a critical role by discovering actions that promote health, minimizing the risk for and consequences of disease and illness, and communicating these efforts to citizens, employers, and policy makers. To accomplish this end, urban sustainability needs to be integrated into nursing education at the doctoral level. This presentation will consist of four parts: an overview of the evidence supporting nursing as a key discipline in urban sustainability; a description of the initial steps to integrate sustainability into the doctoral nursing curriculum; a presentation of the curriculum; and a discussion of the barriers encountered in developing this curriculum along with solutions to overcoming the barriers.

### ***Sustaining Indoor Environmental Quality in the Classroom to Improve Learning***

Dale Walsh, Converse Consultants and part-time instructor at UNLV and College of Southern Nevada

This presentation will include the basics of establishing and maintaining good indoor environmental quality in a school environment. Designing and maintaining adequate amounts of clean outdoor air to dilute pollutants generated from both the environment and the occupants is important in reducing transmission of diseases between students and in reducing exposure to building related contaminants and other potentially harmful particulates. To illustrate the value and problems that can arise from poor indoor environmental quality, a case study of an Arizona school with high profile indoor air quality problems will be addressed. In addition, studies regarding improved learning attributed to schools constructed with Green Building systems will be presented.

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