Cold Facts
With ... a faculty and staff characterized by high quality and a broad diversity of professional skills, Appalachian takes as its mission the practice and propagation of scholarship. This is accomplished particularly through instruction, but also through research, creative, and service activities to the University community.

– Appalachian State University Mission Statement

Appalachian State University prides itself in hiring quality faculty who excel in their respective fields, and in turn, share this professional knowledge and enthusiasm in the classroom. We believe these activities enrich the learning environment for our students.

The Fall 2005 issue of Appalachian Explorations certainly exemplifies the university’s Mission Statement. In this issue, you will find articles on child labor, global warming, preschool education, and the preservation of classical music. These articles are important not only for their contributions to the respective disciplines, but for how the research is woven into the fabric of the Appalachian educational experience. Throughout these articles you will see opportunities for graduate and undergraduate student involvement as well as significant contributions to society.

External funding is critical if Appalachian State University is to continue to expand its research and service initiatives. I am pleased to report that the faculty members are actively engaged in securing funding from government and private sources for their research and programmatic activities. For the past two years, faculty members have submitted grant proposals totaling $33 million. Grants that were awarded totaled $11.3 million this year, an increase of 24 percent from last year.

The significance of external awards is demonstrated in how Appalachian utilizes these funds. Last year, $2.9 million was used for academic support (including teaching), $1 million to support various research initiatives, and $5.8 million for public service and outreach.

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While holding firm to the long-standing commitment to quality instruction, Appalachian State University continues to expand its role regionally, statewide, nationally and internationally. This is truly an exciting time at your university.

Sincerely,

Stan R. Aeschleman
Provost and Executive Vice Chancellor

Comments from the Provost

Ending Child Labor

Historically, every industrialized nation at some point in their development has employed child labor. But it doesn’t have to be that way.

A Classical Virtuoso

A guitarist plays period music the way it was meant to be heard.

Cold Facts

The coldest places on Earth offer clues about how our planet is heating up – and what the changes mean for us.

Reaching the Extremes

Can educators teach in a way that benefits preschoolers with disabilities and their mainstream classmates? Yes, according to a new study.

Research Notes

Appalachian Explorations, formerly called Research News, is published by Appalachian State University’s Cratis D. Williams Graduate School. Correspondence and comments should be sent to Robert Johnson, Senior Associate Dean, Office of Research and Sponsored Programs, Cratis D. Williams Graduate School, John E. Thomas Building, Boone, NC 28608. Phone, (828) 262-2130. Email, johnsonrl@appstate.edu
It’s not so different than America 90 years ago when New Jersey girls and boys waded into bogs to pick cranberries, boys black with coal dust worked the mines of West Virginia, boys small enough to climb onto the textile machinery in Georgia repaired broken threads, and young girls in Virginia worked all day rolling cigarettes.

Child labor scholar Hugh Hindman, a professor of labor and human resources in Appalachian State University’s Department of Management, hopes the lessons of America’s struggles with child labor in the early 20th century will help developing nations avoid similar mistakes. He is the author of “Child Labor: An American History,” published by M.E. Sharpe Inc. in 2003.

Hindman’s book is used by the International Labor Organization (ILO), the United Nations Children’s Fund (UNICEF) and other organizations working to end child labor in developing nations.

Child labor isn’t just a moral issue. Hindman points to economic reasons to end child labor, as well.

If a developing nation chooses education for its children over work, the country’s economy grows faster, Hindman said. If a nation makes small investments in technology, the economy grows faster.

“By 1910, the United States had made a commitment to a child labor law to protect child laborers,” Hindman said. “In the U.S., the states had laws, but there was no comprehensive federal law. This was the first time we had a comprehensive federal law to protect child laborers.”

It wasn’t until the 1938 Fair Labor Standards Act that the federal government made laws to protect children from exploitation. As the 1930s ended, the American economy started recovering from the Great Depression. The country was ready to lead the world to end child labor.

“Legislation can help,” Hindman said. “But even in the United States 80 years after the height of our problems, we still have child labor issues to solve.”

Agriculture is one example, where children as young as 12 work long days harvesting perishable crops. “Eighty years ago it was Italians, Poles and Bohemians. Today it is Latinos,” Hindman said.

In U.S. cities, child labor takes the form of street trades: children peddling scam products or asking for donations. “And sweatshops still exist because of complex subcontracting systems that create home production networks in needle trades and garment production,” Hindman said.

Hindman says the United States should ratify the United Nations Convention on the Rights of the Child and the International Labor Organization’s minimum age convention. He also urges the United States to take the lead in advocating the incorporation of labor standards into global trade accords.

“We should be leading the world to end child labor here and globally, but we are not,” he said.

An emerging global child labor issue, for which there are few historical lessons to draw from, is the global increase in sex trades. Modern economies, especially in Europe but also in the United States, have created a black-market trade for sex, and although the U.S. Department of Justice has made strides to stop human trafficking, child prostitution remains a major global problem.

Hindman said Hindman’s current scholarly project is developing a world atlas of child labor in global and historical perspective. A compilation of articles by scholars and researchers around the globe, the work is to be published by M.E. Sharpe Inc. in 2008.
In the dusty archives of Italy’s Naples Conservatory, Douglas James searched through thousands of manuscripts, compositions and scores — many cataloged with 200-year-old handwritten cards.

Not as modern as American libraries, the conservatory’s music library contains about 250,000 pieces, mostly originals, many rare and some untouched for more than a century.

The Appalachian faculty member was searching for the late compositions of Mauro Giuliani in hopes of publishing a collection of the Italian composer’s works. In addition to these, he discovered something unexpected — a lost, 19th century, two-guitar arrangement of a Rossini overture.

“For a guitarist, this is comparable to a pianist stumbling across an unknown last work of Mozart,” said James, an associate professor in the Mariam Cannon Hayes School of Music.

He included the nine-minute composition on his latest compact disc. The serendipitous find is just one of many gems of 19th century guitar music that James has found, recorded and shared with audiences around the world.

For a classical guitarist like James, his obsession with the 19th century is natural. An explosion of interest in the six-string instrument in the early 1800s made this the “golden age” of the guitar.

“The growing middle class at that time had more money to purchase guitars and music, and more time to learn to play,” James said. “All of the major European musical centers had resident virtuosi guitarists who made their careers performing, teaching, and composing music for themselves and student amateurs.”

James not only loves to teach and speak about early 19th century guitar music, he collects sheet music from the period, plays a restored 1800s-era guitar with cow gut strings, and performs and records the early Romantic music in a style as close as possible to how listeners would have enjoyed it more than 200 years ago.

Scarcity of the Score

To play in a historically informed style, one must first obtain the music. More than half of guitar music written from 1780 to 1820 remains unpublished in modern form, according to James. The piano’s affordability and rise in popularity killed the golden age of the guitar. So, much of the guitar music never received a second printing.

“With much of it, only one or two copies exist,” James said. “You have to search Europe’s music libraries and photocopy originals, or find collectors willing to let you copy the works.”

When James plays, he wants the original music or at least a copy. As a result, his personal collection keeps growing.

“I want to see the composer’s original manuscript or at least a first edition of the published music,” James said. “Modern editions are often tremendously altered by editors. My goal is to play as true to the original composition as possible.”
Having studied Giuliani, Italy’s most accomplished guitar player/composer, James knows the composer’s signature guitar techniques and textures. When playing some of Giuliani’s posthumously published works, James has to recreate missing expressive markings that he says surely would be found there.

“The great 20th century guitarist Andres Segovia popularized guitar music in the 1970s, and much music was reprinted then – but only what Segovia said deserved to be republished. Until recently, everyone accepted that. But Segovia is now dead, and we are rediscovering a world of music without the Segovia bias,” James said.

Segovia’s influence extended to what type of guitars musicians played and the style in which they performed. He popularized the modern Spanish guitar, which contrasts greatly with the French and Italian instruments popular just a century before.

“It’s not that you can’t play 19th century music on modern instruments. You can,” James said. “But even if you are playing early Romantic music on a modern guitar, you should use playing techniques from the 19th century.

“A good pianist doesn’t play Mozart and Rachmaninoff the same way. They composed on very different pianos. When a musician learns that, you can’t approach the music the same way again.”

James compares it to an opera singer singing the blues. “She can sing it, but it doesn’t sound quite right,” he said.

James plays a restored French guitar built in Paris between 1859 and 1836. Typical of instruments of the period, the fairly small guitar has a spruce top, maple sides, and maple lamination on a pine back. The interior lacks the fan bracing of modern instruments with only transverse braces under the top. Mother-of-pearl inlays around the edge of the top and around the sound hole decorate the guitar, making it a piece of art.

“It was probably intended to appeal to a wealthy female amateur musician,” James said. “For her, playing the guitar would have been quite fashionable at the time.”

With original music and an authentic instrument in hand, James now wants to record as much of the music as possible.

“There is an enormous body of guitar music from this era, much of which has never been recorded,” James said. “There is just so much music that deserves to be heard.”

A Life-changing Performance

James has recorded three CDs of 19th century guitar music – two of them with Italian guitarist Pasquale Rucco – since discovering the historically informed performance style 15 years ago.

“I had this growing dissatisfaction when playing this music I loved, early Romantic music, as I didn’t have a convincing idea of how it was supposed to sound,” James said of his professional life in the early 1990s.

Then, a concert changed his life.

While teaching at the University of Akron in Ohio, he saw a performance by a group of Italian musicians who played 19th century music on period instruments. James was so enthralled that he left the United States to study with the group in Italy.immersing himself in the experience, he bought his first period instrument, entered and won Italian guitar competitions, and spent the next three summers in Italy mastering historically informed performance.

While in Italy, James met Rucco, who shared his passion for historically informed performing.

In addition to solo and duo performances with Rucco across America and in Europe, James has performed on National Public Radio’s “Performance Today.” He increasingly lectures on stylistic performance and writes on the topic, too.

At Appalachian, he loves sharing his passion with students in the Mariam Cannon Hayes School of Music’s guitar studies program. “I’m a bit of an evangelist. I love this music and I plan to continue to share it with my students, audiences and listeners,” he said. 

Cold Facts

An Appalachian geologist studies past climate trends to better understand the effects of today’s global warming.
By William H. Purcell ‘94

Like many North Carolinians, geologist Ellen Cowan travels with her family to the beach each summer. She loves the wind-sculpted sands and blue waters that make up North Carolina’s coastline, especially the Outer Banks. She takes her Appalachian State University geology students there, too, to study first-hand the changing form of land and sea.

The trips are bittersweet experiences for Cowan, whose climate change research in other parts of the world leads her to believe that the Outer Banks will eventually disappear, if not in her students’ lifetime, definitely in her children’s. “The thought of losing our coastal areas is unbearable,” said Cowan, a professor in Appalachian’s Department of Geology. “But I don’t believe my kids can’t. That is sad to me.”

Cowan has witnessed dramatic change in the Alaskan and Antarctic landscapes, where giant glaciers are melting into the sea. “I’m sad,” admits Cowan, who has studied Alaskan glaciers for 20 years. “I’ve been a witness to huge sections of glaciers in Alaska shrinking. The ice recedes leaving bare rock, and vegetation flourishes where ice once stood. I’ve seen things and had experiences my kids can’t. That is sad to me.”

What induces sadness also offers new knowledge. Cowan’s studies of the Alaskan and Antarctic coasts are increasing scientific understanding of how the Earth changes.

Funded by two National Science Foundation grants, Cowan takes core samples from the ocean floor to study how climate changes have and will affect glaciers in Alaska and Antarctica. The Earth is warming, she said, so glaciers are melting and sea are rising. She’s determining how fast the change will come — centuries or decades.

Though 100 years is a blink of an eye in geological time, Cowan warns that the Earth may be on the edge of a 21st century climatological disaster. “If it has happened in the Earth’s past, it can happen again,” said Cowan. “There are definite periods in our planet’s history where the climate changed dramatically in just decades, not centuries.”

“A rapid rise in water — and by rapid I mean 30, 20 or even 10 years — would first affect Pacific islanders,” Cowan said. “It is not flooding that will hit first, but rather a fight for fresh water as the salt water rises, mixes into the fresh and contaminates the water supply.

“We’re talking about the displacement and relocation of millions of people because no fresh water will be available.”

Cowan says the United States won’t notice the rise in sea level until the country is hit by major storms.

“If the sea level is just a bit higher, the damage from hurricanes and other storms will be more catastrophic,” she said. “The Outer Banks will be the first thing to go. The Earth went through this rapid glacial melting and water rising in the past, so it would be negligent for us as geologists not to look at what happened.”

So, Cowan searches for clues.

“I decipher the story of the accumulated sediment on the sea floor in the polar regions in the oceans of Antarctica and Alaska,” she explained. “Sediment is really a sensitive recorder of climate change.”

Sediment cores from Alaska typically go back about 12,000 years, and samples from the Antarctic date back as far as 17 million years.

Cowan began glacier work as a graduate student in 1984 at Alaska’s McBride Glacier. While there, her mentor showed her a photo of the glacier in the 1960s.

Cowan was shocked to see how much of it had melted. Now she’s experienced the melting first hand, for in the 20 years since receiving that photo she has seen McBride Glacier retreat even further.

“We know the Earth’s climate is changing, warming, and that glaciers are melting,” Cowan said. “We’re studying the poles because that is where the climate is most sensitive.”

“From reading the ‘mud’ we can tell how much and how fast glaciers are melting, which helps us know how soon this climate change is going to hit us.”

Cowan collects the mud samples aboard the research vessel Alpha Helix and X-rayed, run through a sieve and scanned with an electron microscope. Her research team looks at composition, grain size, microfossils and vegetation.

“In a special facility in Oregon, the long, skinny samples of mud are sliced down the middle: one half reserved for Cowan and her students to use, the rest stored for other researchers.

Cowan examines the bagged sediment in her lab at Appalachian where it is X-rayed, run through a sieve and scanned with an electron microscope. Her research team looks at composition, grain size, microfossils and vegetation.

“Seventeen million years ago was as warm as the Earth gets,” Cowan said. “Was it so warm that all the ice left? We know there are times in the Earth’s history where there was no ice at all. How did this transfer of ice into the ocean raise the sea level? And how did that affect life? These are the questions we want to answer.”

Knowing how glacial melting affected the Earth 17 million years ago may help humanity deal with glacial melting today.

“What is most problematic for our future is the impact of rising water levels. Most of our cities are in coastal areas. Just a half-meter rise in water levels would go very far inland,” she said.

In the gravitational interaction between the Earth and Sun, major climate change occurs every two million years or so. While we have no control over this natural relationship, Cowan said we can control the major cause of today’s planet warming: carbon dioxide emissions. Carbon dioxide discharged by cars and power plants is a greenhouse gas that gets trapped in our atmosphere.

“I hope there is still time to take action and turn this climate warming around,” Cowan said. “If we can reduce the output of carbon dioxide emissions, we do have a chance. You can’t do it quickly on a dime, but with small adjustments over time you can get it going in a different direction.”

“Our society needs to look at lifestyle,” Cowan continued. “First, we need to reduce our use of electricity from coal-fired power plants. Second, we need to change the transportation system and our dependence on cars.”

Photo credit: Keith Seramur

Professor Ellen Cowan conducts field work in June with Appalachian geology majors Alex Ulrich, Matt Ake and Jay Thacker. “It is a unique experience for undergraduate students to be aboard major research vessels out at sea and to go on hiking expeditions on glaciers. These are things not many people will get a chance to see,” Cowan said.

Geologist Ellen Cowan examines core samples from the ocean floor. Inset, Alex Ulrich’s electron microscope photos of microfossils found in ocean floor sediment.
Reaching the Extremes

Two professors – each a specialist in a traditional form of teaching – find that attentive teaching can be effective regardless of a child’s ability or disability.

By William H. Purcell ’94

With increasing evidence that a child’s earliest years determine success later in life, childcare and preschool facilities are now centers for learning like never before.

Parents and society are changing their terminology: childcare is now called “school” and childcare workers are “teachers.” With the transitions come growing pressures for teachers to perform while remaining often underpaid, overworked and under trained.

After years of research, Reich College of Education faculty Peg Werts and Angela Losardo have found new teaching approaches that will improve how preschool and childcare teachers reach children.

The strategies may require more conscious effort from teachers but the rewards are great, according to the Appalachian State University research partners. “We want to train them in the different teaching approaches and arm them with strategies to know how to choose which approach is appropriate for each circumstance,” Werts said.

With a three-year, $500,000 grant from the U.S. Department of Education’s Office of Special Education Programs, Werts and Losardo set out in 2001 to see if they could raise the learning curve for children who have, or who are at risk for, developmental disabilities and at the same time raise the learning curve for every child in the class.

They succeeded.

Werts and Losardo found that often the best teaching approach combined aspects of more than one theoretical approach. Attentive teaching can be effective regardless of the child’s ability or disability.

Some teachers choose one of two polar-opposite teaching approaches to use with students: direct instruction (DI) or activity-based intervention (ABI). Werts and Losardo found that merging these two traditional methods into a combined approach – and then discovering which of the three approaches work most effectively with the teacher, student and class – is the key to helping all children learn.

“Teachers get comfortable with which teaching approach they personally are trained in or most enjoy using; or they may believe one theory is better than the other,” Werts said. “You have to find out what works best for each individual child.”

A Fundamental Shift

How the research partners reached their conclusion required some joining of their own individual areas of expertise. Werts specializes in direct instruction, Losardo specializes in ABI.

In their research, they studied 65 children between ages 3 and 5 in childcare and preschool settings. Because the schools fully integrate children with developmentally disabilities into the classroom, the researchers could look at how the approaches affected all students.

Werts and Losardo spent six months training the teachers in the traditional DI and ABI approaches. Flashcards are a prime example of direct instruction. “DI is ask and tell. The teacher always initiates it,” explained Werts. “You spread DI out in short sessions throughout the day and go until the child shows mastery.”

Activity-based intervention is integrated with play. “A teacher might put out many objects that begin with the letter ‘A’ and wait for the child to initiate a conversation about the letter ‘A.’ The learning of the letter doesn’t take place in a short session at a table – it takes place throughout an afternoon as the child discovers through activities,” said Losardo.

The teachers in the study alternated DI and ABI throughout the day while the research partners and a team of undergraduate and graduate students recorded the results. They discovered that some preschoolers learned with DI only, some learned with ABI only, the majority learned with either, and some didn’t learn at all.

“We took the kids that didn’t learn at all with either approach and then took everything that we thought was working out of both DI and ABI and applied it to those children in a combined approach,” Losardo said.

“No one has done this before. You were either DI or ABI. This is a fundamental shift in the way you approach teaching.”

In the combined approach, the professors used best practices of each method. These included DI’s attention-getting style, ABI’s non-demanding manner, both approaches’ rule not to interrupt other learning, DI’s clear expectations of what to do and ABI’s self-satisfaction reinforcement.

The combined approach worked. The children who didn’t learn with either traditional approach did learn.

Thinking Outside the Middle

While the majority of children learned with either traditional approach, the two colleagues didn’t want to leave behind the children at the top or bottom of the bell curve.
Family history stokes classroom creativity

Like many baby boomers, English Professor Gene Miller grew up with a father who didn’t talk about his days as a World War II combat soldier. What he learned after his dad’s death, however — that Sgt. Eugene L. Miller helped liberate a concentration camp and photographed some of the atrocities — led to new ways to teach students about that war.

From his personal journey retracing his father’s steps across Europe, Miller has created a new course, called “Writing and Filming the Second World War,” for the Department of English’s modern studies requirement. He has taught the class for two years, incorporating well-known memoirs such as “Catch 22” by Joseph Heller and “Hitler’s Plight” by John Hersey, and films that shed new light on the war. The course also includes amateur photos taken by his father.

“Today’s college students know some of the major events during World War II like D-Day, but they know nothing about the specifics — such as what it was like to be a citizen soldier. They have grown up in a America with a professional army, not a conscripted army, and they know very little about what the draft meant to families and to the 15 million men and women who served,” Miller said.

Sgt. Miller served in the 10th Armored Infantry Battalion of the 4th Armored Division. From what his son has pieced together, Sgt. Miller joined as a replacement in 1945, riding tanks as the division closed in on Hitler’s army. His battalion helped liberate Ohrdruf, the first concentration camp found by American troops.

It was just after Sgt. Miller’s death in 1996 that Miller started his research. While sorting through his father’s belongings, Miller found a photographic postcard of a small chapel in the Czech city of Ceske Krumlov that he had seen just a few days earlier in another photograph — one shared by his daughter, Rachel, of her yearlong teaching stint in Prague, from which she had just returned.

“It was the same chapel,” Miller recalled nine years later, still amazed. “My dad and my daughter, separated by 50 years, photographed the same church. I took that as a nudge from the creator to find out what my father was doing in Czechoslovakia.”

Miller, his wife and two daughters have traveled twice to Europe, combining vacations with treasure hunts for information. Using the Internet and contacts with aging veterans, Miller has assembled more details on Sgt. Miller’s tour of duty.

“What took me nine years to research I could have learned in just three days of talking to my dad,” Miller said. “But, I respected his wishes not to talk about it.”

Miller, who has taught at Appalachian since 1977, calls teaching and scholarly research “intimately integrated.” A heightened awareness of a specific topic fuels a greater passion and enthusiasm in the classroom, he said.

In May, Miller received the UNC Board of Governors Award for Teaching Excellence.

Four art faculty included in national juried exhibition

Four faculty members in Appalachian’s Department of Art were chosen for the Halpert Biennial National Juried Visual Art Competition and Exhibition on campus, which recognizes new works by emerging and established artists in the United States.

The exhibit is displayed at Appalachian’s Catherine J. Smith Gallery through Sept. 16.

An Appalachian Summer Festival sponsors the competition every two years. Junior for this year’s competition was Mary Agnes Beach, museum curator for the City of Coral Gables in Florida.

Among the exhibit’s 70 pieces are Ed Midgett’s digital print “Untitled Peace,” Scott Ludwig’s digital media of a storefront window titled “Re- fection on New York 11/15/03 (Chinatown Queen with Rearing Horse),” a quilt by Jeana Eve Klein titled “Her Own Little World” and Una Pett’s painting “Self Portrait 5 Times.”

Midgett is a professor who teaches digital media and motion graphics. Ludwig is an assistant professor of printmaking and drawing. A lecturer, Klein teaches classes in fibers, Pett, an adjunct faculty member, teaches drawing, and leads community workshops through Appalachian’s Turchin Center for the Visual Arts.

From top:

“Her Own Little World,” Jeana Eve Klein

“Untitled Peace,” Ed Midgett

“Reflection on New York 11/15/03 (Chinatown Queen with Rearing Horse),” Scott Ludwig

“Self Portrait 5 Times,” Una Pett

Putting the Research to Use

Werts and Losardo would like to see teachers change the way they teach, especially at the childcare and preschool level.

“In special education, the earlier you can start working with children and families the more you can reduce impact by catching and intervening with developmental disabilities,” Losardo said.

Once teachers know what approach works best for each individual child and each individual situation, they can design effective instruction.

The two dismiss the notion that childcare and preschool teachers who typically have less training and make less money than grade-level educators would resist added responsibilities.

“These teachers are really proud of their results when they begin to set clear objectives, to plan and to see their students improve,” Werts said.

“Like most teachers, the reason they put in the extra time is not the money, it is because they have a personal commitment to children.”
Third larval stage of *Triops* sp., commonly referred to as sea monkey

A crustacean, the sea monkey grows to about two inches long and lives in ephemeral bodies of water. High magnification images like this are made frequently in the Appalachian State University College of Arts and Sciences’ Microscopy Facility using an environmental scanning electron microscope. Purchased in 2002 through a National Science Foundation grant, the ESEM was one of the first of its kind in the University of North Carolina system. The facility also features a confocal laser scanning microscope and a transmission electron microscope. The College of Arts and Sciences’ Microscopy Facility is used by students and faculty for a variety of research projects in biology, geology, chemistry, physics and anthropology.