

THE IUP GEOSCIENCE ALUMNI NEWSLETTER

GEO TIDINGS

In this issue

**Celebrating our golden
anniversary in 2018!**

Cover Photo: IUP students study the stratigraphy of the San Rafael River's Little Grand Canyon in Utah

IUP Geoscience Faculty & Staff Rock!

For the fourth consecutive year, the Geoscience Department became one of the few departments at IUP to reach the goal of 100 percent participation in the 2017 University Family Drive. All of the Geoscience faculty and staff gave generously to support students in several areas, including the Joseph C. Clark Research Scholars, Walt Granata Geology Fund, Paul Prince Oceanography Fund, and the Next Generation Field Fund.

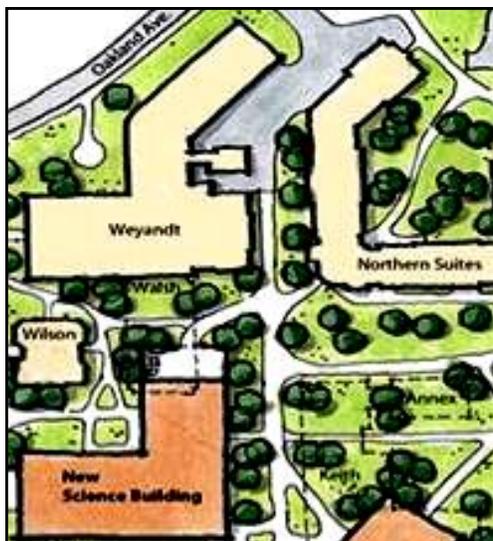
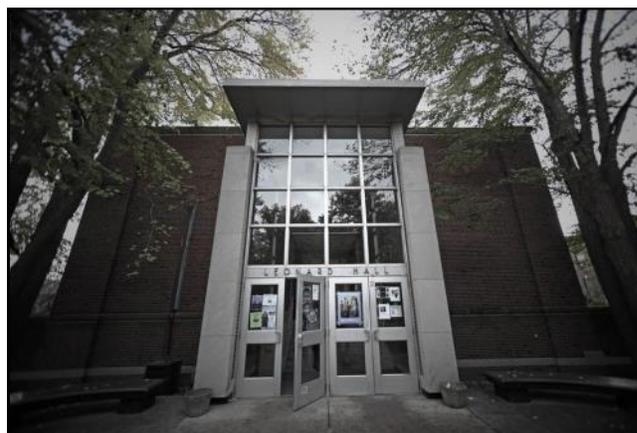


"We have always focused on a student-first philosophy in our program, and it shows in the way we give to our students, both academically and financially", said Steve Hovan, department chairperson.

Overall at the university, 823 employees made IUP students a philanthropic priority in 2017, placing IUP's employee participation at 57 percent — the highest participation percentage ever.

Progress on the New Science Building

There is progress to report on the design and construction of our new science building! The main architects have been selected and the contracts with the design firms are in the process of being signed. This fall, Leonard Hall (seen at the right) is being torn down to make room for the science building's new footprint. The planned timeline has Walsh Hall being torn down as well before construction of the new building can begin.



We be moving our offices, rock collections, equipment, and classrooms to Weyandt Hall during construction, sharing facilities with the Biology, Chemistry, Physics, and new Environmental Engineering programs. After the new building is complete, these five science departments will all move there together, allowing Weyandt Hall to be torn down for additional parking or other campus projects.

The College of Natural Science still has opportunities for donations and naming rights to labs, classrooms and other parts of the new facility. If you or your company are interested, please contact the IUP Division of University Advancement at <https://www.iup.edu/supportiup/>.

Join Us for Geoscience Day 2018 ...

SAVE THE DATE — THE 44TH ANNUAL GEOSCIENCE DAY WILL BE APRIL 27, 2018

Alumni are welcome to join us for our annual celebration of geologic research at IUP. We've outgrown the IUP Planetarium, so our twenty seniors will present their capstone research talks in the Susquehanna Room at the HUB, just upstairs from the student coop bookstore.

The featured alumni presentation this year will be given by Samantha Ritzer '14. Seen here with her 2014 cohort at the IUP Undergraduate Scholars Forum, Sam has now completed her masters' degree at Virginia Tech, and is pursuing a PhD at Stanford University.



Following the day-long presentations, the department will head over to the Rustic Lodge for the annual Geoscience Banquet. Awards and scholarships will be announced, and the Geological Society of IUP will present graduating seniors with gifts. We invite all alumni to join us there.

WATCH YOUR EMAIL OR CHECK OUT THE GEOTIDINGS FACEBOOK PAGE LATER THIS SPRING FOR INFORMATION ON THE SCHEDULE OF TALKS AND HOW TO RESERVE BANQUET SEATS.

... And Help Celebrate Our 50th Year!

THE IUP GEOSCIENCE DEPARTMENT'S GOLDEN ANNIVERSARY BANQUET WILL BE HELD ON FRIDAY OCTOBER 5, 2018

📅 SAVE THE DATE | HOMECOMING 2018 | OCT 6, 2018

The IUP Geoscience Department was founded by Walt Granata, Paul Prince, Fred Park, and Bob Woodard in 1968. Some of you may remember the All-Alumni Reunions we held for the 30th Anniversary of the Geoscience Department in 1998, and then again for the 40th Anniversary in 2008. Now we're getting ready to celebrate our biggest anniversary yet! As we've done in the past, we'll host an anniversary banquet on the Friday before Homecoming. Former and current faculty and staff, as well as current students, will be on hand to welcome alumni from all decades back to campus, and celebrate our geoscience family's many accomplishments over the past five decades. The Dean of our College will also welcome alumni at the Crimson Huddle on game day. Please make plans to join us (details on time, location and costs will be finalized this summer). More information about IUP's Homecoming can be found at: <https://www.alumni.iup.edu/s/894/15/index.aspx?pgid=1713&qid=1&cid=2852>

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Jane Jones '69

My husband and I are still traveling. In 2016 we spent four weeks in southern France. Our goal was taking pictures for our small business Timeless Portals LLC. We visited a great number of the walled cities and had a wonderful time photographing them. Of course, the food was the second most important thing to enjoy! We had such a wonderful time but, soon realized, we didn't see as much as we would like so in 2018 we are going back for six weeks. We plan to take a side trip to Geneva, Switzerland and take a tour of Cern. Also are planning side trips to northern Italy and Barcelona, Spain. We know we always plan too much but we try to get it all in!



This year (2017) we took a two week trip to Iceland since it is only six hours and 40 minutes from Anchorage. What an amazing place to visit. One of the highlights was a trip to "Inside the Volcano" outside of Reykjavik. It is a trip inside a dormant volcano a few miles from the city! We also traveled to the West Fjords and went to the "end of the road" because that was where we were staying. It sure was a looonnggg drive. The tunnel we had to travel through had an intersection with a 90 degree turn in it - so it went straight through on one road to one city and a turn to get to another city. The geology is amazing all over the country. There is a

layer of columnar basalt that can be seen in many places and it is at least 15-20 feet thick. I was impressed and took a lot of pictures especially where the waterfalls exposed the layer. Can't wait to go back so I can see the rest of the country.



We are doing fine and keep busy with all the things Alaska offers - fishing, hunting, camping, and shoveling snow and mowing grass. If you ever are in Alaska you can contact us at missjane@gci.net

William Clark '73

After 40+ years in the energy business, I have fully retired (as of April 2016). My career took me to far-flung places including the Americas, Africa, Middle East, Australia, Europe, Russia, and China. My last 18 years were in the consulting group of Schlumberger studying carbonate and the occasional sandstone reservoir rocks. I am now enjoying my hobbies (guitar, travel, and reading) and grand children very much.

Some of our trips this year, with geological significance, included SE Utah (Arches NP and Deadhorse SP) in the flat-lying Mesozoic rocks of the Colorado Plateau. In September, my wife and I visited friends in Sydney, Australia. There we saw deeply incised nearly flat-lying Triassic sandstones in the Blue Mountains west of Sydney, cliffs of sandstone along the coast at Sydney, and late preCambrian to Cambrian coarse arkoses and boulder conglomerates of Uluru (Ayers Rock) and Kata Tjuta (The Olgas), respectively.

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The highlight of our trip, however, was spending 5 days snorkeling at Heron Island, at the southern portion of the Great Barrier Reef (GBR). This brought back my passion for studying carbonates that Dr. Granata instilled in me in the early 1970's. In addition, the starry nights of the southern hemisphere were spectacular (thanks to Prof. Sutton for that inspiration).



Carla Kertis Brezinski '78

Carla Kertis Brezinski began a new position earlier this year as Associate Director of the Eastern Mineral and Environmental Resources Science Center at the U.S. Geological Survey in Reston, VA. Carla leads a group of approximately 25 research scientists and support personnel who conduct research on mineral deposits and the environmental effects of

mining. Previously, she was a Cartographer with the U.S. Department of Agriculture's Natural Resources Conservation Service. In her current position, at least she can keep an eye on fellow IUP alumnus, John Repetski '69. Carla's and David K. Brezinski's ('77) daughter, Laura, is an Environmental Science major at Stevenson University (Owings Mills, MD) and a defenseman on their NCAA Division III women's ice hockey team.

Scott Ishman '82

Scott reports that he is looking forward to the department's 50th anniversary celebration in 2018. After serving as the Associate Dean of the College of Science at Southern Illinois University Carbondale for 4 years, Scott was appointed as the Interim Dean of the College this past summer.

Tim Nuss '88

Nothing new to report, just super busy with my family. My daughter is a junior in high school and plays softball. She just verbally committed to Stony Brook University on Eastern Long Island. She will study Physical Therapy and play Division I softball for the Stony Brook Seawolves! I am heading to Colorado next summer with her for a softball tournament, so I will have some great geology pics to share as I take her into the mountains for some exploring on her off days from softball games. Really looking forward to it.

I am still employed by the State of NJ, doing environmental work. My duties have shifted to more potable well sampling, and indoor air sampling in homes and businesses and installing treatment systems where necessary. I am nearing 26 years of service, and hope to retire at age 55 if possible, and find something else to do for a few years that will also allow me to play as much golf as possible and keep up on my tennis game and fishing!

I still keep in touch with Bryan Emilius '89,

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although it's been a while since we got together. We both seem to have gotten busy with our kids. Hopefully when they are all off to college we can start getting together again more regularly.

I was at IUP for homecoming weekend, and took a walk through the Geo Dept...Ah, the memories!

Jim Saiers '89

Your note got me reminiscing fondly about IUP Geoscience. Those structural-geology field trips with Dr. Hall, which sometimes included a pub stop to shake off the springtime cold; trying to distinguish ceratites from goniatites in paleo lab before Friday-afternoon wallyball with Dr. Taylor; never making thin sections quite thin enough for Mr. Park; trampling along the shores of Lake Erie with Dr. Richardson, and Dr. Cercone's classes, which sparked my interest in hydrogeology and graduate school. I miss those days!



I noticed that the department now has a degree track in energy resources and a certificate in shale-gas energy. We're studying relationships between groundwater quality and shale-gas development in northeastern PA and are extending this research to parts of eastern OH. If you have any motivated students considering graduate school, please send them my way!

Editor's Note: *Jim is too modest to brag, so we'll do it for him! After getting his graduate degrees at the University of Virginia, he is now the Clifton R. Musser Professor of Hydrology in the Yale School of Forestry and Environmental Studies.*

Heather Renyck '99

I continue to teach environmental science and Earth & space science to high school students in western NY. One of the fall highlights was arranging a college visit for a few of my students who are interested in pursuing geoscience or environmental science. I know that IUP has a strong program, of course. I made contact with Dr. Hovan who made arrangements for our visit on November 28th. Dr. Hovan took students into several labs to show them what IUP Geoscience has to offer. Dr. Lewis allowed us to observe his environmental studies class and welcomed students to contact him anytime if they had questions. Geoscience Club president, Austin, took us on a tour of the campus and answered questions about the program from a student perspective. My students were impressed, and now they are better equipped to ask questions when they take tours of other campuses. It was a great day for us, and we are thankful. I hope that at least one of them will apply to IUP.



Another highlight for me was my summer trip with my partner, Jim. We rode our motorcycles from the Georgian Bay of Ontario, through the Canadian prairies and all the way to the mountains of British Columbia. We camped and hiked along the way whenever we had a chance. I enjoyed seeing the early migrants (birds), and it was good to experience the diversity of the grasslands (lots of fracking wells along the way, too). While in Alberta, we stumbled across The Frank Slide Interpretive Center! That brought back memories from Dr. Hall's geomorphology class. If

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you are unfamiliar with the story of Frank Slide, Google it right now.



Jim and I spent time hiking in the mountains and riding our motorcycles on the forestry roads. We both took a spill in some deep mud and ended up having to make some minor repairs. That interrupted our journey to the solar eclipse path. We didn't quite make it, but we still enjoyed 90% coverage from Shelby Montana. Glacier National Park was amazing as always, but we were passing through during wildfires. The Dinosaur Trail along Route 2 in northern Montana was a real treat, too. Never enough time to explore!

Tom Buterbaugh '01

This year has been another good one for me and my family - very thankful. Geologically, we did a 2 week family trip throughout Yellowstone, Rushmore, and the Badlands this past summer. I had a blast fly-fishing with my now 10 year old son Carter on the Soda Butte and other waters of Yellowstone. Professionally, I am the Lead Investigator of Southeastern PA for the PA-DEP Bureau of Investigations. Please have anyone contact me if I can ever be of assistance. Hope everyone is doing well.

Steve Smith '01

We had a rather busy year in 2017. We are all doing well after getting over some seasonal crud.

We hope you are doing well. Aurora is progressing in fifth grade at Porter Traditional School. She still enjoys reading, and is still excited while learning about the history and science subjects. She is currently not playing an instrument in school, but has expressed wanting to try out the drums. We will be looking into some lessons in the new year to see how she does and if the interest lasts. Aurora is also progressing in her second year of being a Junior Girl Scout.



Kate is still a temporary special education aid at Leesylvania Elementary School. She is still involved with Girl Scouts as a leader for the troop of Junior Girl Scouts that Aurora is in. Kate is still the cookie mom, so things will soon get crazy around here with so many cookies.

Steve has continued to do some Civil War reenacting and living history events with his group, the Liberty Rifles, though it hasn't been as much as the last several years. This year the living history schedule included Point Lookout, MD; Brawner's Farm at Second Manassas, VA; anniversary program at Gettysburg, PA, and the rainy Remembrance Day parade at Gettysburg, PA. The Honor Flights have also been a staple for the yearly activities. There was even a new item to participate in: the greeting of Medal of Honor recipients at the airport for their annual get-together in Washington, DC. July also saw Steve traveling to Georgia with his cousin, Tom, to see his godson, Brandon graduate from Basic Training at Fort Benning, Georgia as an Infantryman.

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This year, the big family vacation took us to the Yellowstone region of Wyoming. For the first half of August we spent the time driving out west to spend four days in Yellowstone National Park, Wyoming; one day over to Craters of the Moon National Monument, Idaho; and then the last three days in Grand Teton National Park, Wyoming. We also had some side trips to: Devil's Tower National Monument, Wyoming; Red Gulch Dinosaur Tracksite, Wyoming; Hell's Half Acre, Idaho; and Jackson, Wyoming. After spending the time in Idaho, Aurora is now up to 40 states and the District of Columbia, as well as three Canadian Provinces. There is likely to not be a big trip this coming year as some things need fixing around the house, but the family hopes to resume them in 2019.

Our pup Jolly Roger turned two back in November, and has been a great addition to the family. He made several trips to Pittsburgh with us this year, and has begun sleeping with Aurora to keep an eye on her at all times.

Jeff Dereume '08

I am still employed at EQT in Pittsburgh, Pennsylvania, but I recently made a switch from our geology group to our asset development engineering group. After 7 years in the geology group, I was interested in learning different functions of our business unit. My new role involves the engineering and optimization of pad locations, horizontal well layouts, and long term volume forecasting. The long term volume

forecasting role has given me exposure to forecasting the growth and capital expenditure for the company, which has been a great learning opportunity. On November 13, EQT announced the closing of the transaction to acquire Rice Energy, which makes EQT the top producer of natural gas in the United States. It has been exciting and busy time watching the company grow from a small eastern Kentucky operator to a major E&P player. I look forward to the learning opportunities ahead as we integrate and execute on the newly acquired assets.

With only one class remaining in the spring, I will happily graduate from Robert Morris University with an MBA in finance. It has been a great challenge and I've learned a lot, but I will be glad to have a little more free time. My wife Kathryn, daughter Evie, dog Loki, and I continue to live in Lawrenceville. Most of our free time is spent checking out spots around the city, but we try to get out and hike in the local parks as much as possible.

Mike Jarvis '08

2017 has been another busy year. Workwise, I have continued at Range Resources and have been actively looking at our Utica and Upper Devonian shale assets during this year. We have continued to operate several drilling rigs throughout the year and have added some additional prospects for future drilling programs.

My wife, Melissa, began a photography business 4 years ago and it has blossomed into more than the "little side project" that it started out as. She mainly does senior photos, but also family and newborns as well. Our son, Owen, turned two this summer and is really excited for the holidays this year. We are looking forward to the new year, but can't believe he will be starting pre-school in 2018.

Happy holidays to all the alumni and faculty at the department, and I hope to see everyone in 2018!

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Kalin McDannell '08

I have recently finished my Ph.D. dissertation entitled "Methods and application of deep-time thermochronology: Insights from slowly-cooled terranes of Mongolia and the North American craton" at Lehigh University under the direction of Dr. Peter Zeitler. Four publications have come out of my work, two papers are focused on advancing the apatite (U-Th)/He dating methodology (coming out soon in *Chemical Geology*) and the other in *Geochimica et Cosmochimica Acta* is about utilizing new laboratory approaches to document the diffusive behavior of helium in apatite and "screen" grains during laboratory heating. Another paper documenting the long-term landscape evolution of central Mongolia is in review with *Tectonics*. The fourth paper utilizes $^{40}\text{Ar}/^{39}\text{Ar}$ dating of K-feldspar to document the 'missing' time-temperature gap in the geologic record for the Canadian Shield of the North American craton. This work is testing the conventional view that cratons have remained stable over billions of years, primarily with instability initiated during supercontinent Rodinia assembly and Grenville orogenesis. This paper is in preparation to be submitted to *Earth and Planetary Science Letters*...but is certainly not set in stone yet!

In other news, I just started a postdoctoral position as a research scientist with the Geological Survey of Canada in Calgary, Alberta where I am working within the Canadian government's GEM (Geomapping for Energy and Minerals) program that is setup to promote responsible land development pertaining to mineral and hydrocarbon resources in the Canadian north (www.nrcan.gc.ca). My part in this work is "Trans-GEM" (spanning individual projects) where I will be using apatite fission-track and (U-Th)/He thermochronology from samples across continent-scale transects to document the Phanerozoic thermal history of

bedrock and sedimentary basins. The low-temperature (< 150°C) thermal histories in preserved sedimentary basins and across the exposed Canadian Shield are coupled with the sometimes complicated episodic histories of sedimentation (burial and consequent heating) and erosion (exhumation and consequent cooling) of now missing Late Proterozoic through Phanerozoic rocks. Understanding the inter-regional distribution and variation of these now-eroded successions is fundamental to assessing the petroleum, and possibly mineral potential on a continental scale.

Matt Morgan '11

After working for Rosebud Coal for several years, I accepted a community development specialist VISTA position in Bethel, AK this past March.

Renee Heldman '12

I recently got a job as a full time geologist with Tetra Tech's Pittsburgh office. I've been here for about 6 months now and couldn't be happier. I've been fortunate enough to participate in some great field work that has taken me lots of interesting places. Recently, I was in Davisville, RI (the photo is overlooking Allen Harbor) working on the annual long term monitoring project. For this, I had to collect soil, GW, gas vapor and even shellfish samples! Who knew finding clams in a harbor would



be so enjoyable. Some of the other projects I've been on have taken me to Circleville, OH, Crane, IN, and next week I head down to Key West, FL. Perfect job for mid-December right?!

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Matt Magill '15

I am emailing you from my new employer Amec Foster Wheeler in Albuquerque, New Mexico. We are an environmental consulting firm with offices worldwide. I am one of three geologists on staff in the environment and infrastructure division, with the rest being engineers, geotechnicians, and administration. My job is 50/50 in terms of office and fieldwork, although I have yet to perform any work in the field. We have contracts with Los Alamos and Sandia National labs to name a few. We are involved with numerous construction projects throughout the region.

I commute by rail from Santa Fe to Albuquerque, which is about an hour ride each way. I find my time on the train to be relaxing with much opportunity to unwind, and express my creative outlets (writing, drawing, knitting). My free time is spent running at elevation, hiking and camping in the National Forest, and skateboarding. The snow will soon be falling and it is my hope to get some turns in at the ski basin on the weekends.

I have had the opportunity to travel around the region and the landscape continues to astound me despite my knowledge of Earth's processes. Most recently, I have found some friends who are into climbing and I am eager to pursue the sport. I hope to find a good work/life balance and I believe I am in the right place at this time in my life. It has been brought to my attention that geology can take me to places I never thought I would be. I plan to be a lifelong student with the hopes of graduate school in the coming years.

Wes Kamerer '16

I have found a job finally! I'll be a geologist for a company called Aggregates and Soil Testing in Enola, PA. I will get to work with a professional geologist and maybe earn my license through him. I am excited that I finally found something to begin my career with.

Samantha Cooper '16

I just found out that I got a job with BAE Systems, using ArcGIS to make maps. That's all they could really tell me until I get my security clearance!

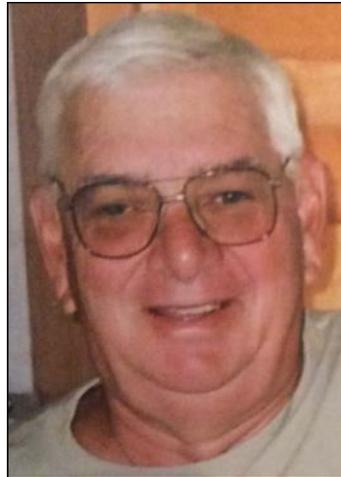
Becky Haase '17

I will be teaching 8th grade Earth Science at Altavista Combined School in Altavista, Virginia. I am very excited to start teaching this fall!

IN MEMORY

We were sorry to hear that Robert E. Bendis, class of '72, passed away this past August.

Bob grew up in Iselin PA, and attended Elders Ridge High School. He took night classes at Penn State, Western Reserve (now Case Western) and other colleges while working as a lab technician for Mallory Battery, Harshaw Industries and Ortec Inc. among others.



Bob eventually returned to Pennsylvania and enrolled at Indiana University of Pennsylvania. He completed degrees in Chemistry and in Earth Space Science Education, and later earned his Master's in Education as well. He finished his career teaching high school in the Jim Thorpe, Plum Borough, and Franklin Regional School Districts. Bob Bendis was 80.

Faculty News — Steve Hovan

Hovan has enjoyed the additional time available to him during his sabbatical to continue plugging away at his work with deep sea sedimentary records of climate change. With the help of several students, we've been extracting dust from samples collected downwind from the deserts of northern Africa and completing detailed grain size analysis to evaluate the intensity of the Atlantic trade winds in the late Cenozoic.

Closer to home, Hovan continued efforts to find effective ways to locate and assess the environmental impact of legacy gas wells in Pennsylvania. This year he secured additional funding to work with SAFER-PA and the IUP Business Technology Group to build a phone app to give users access to the state inventory of abandoned oil/gas wells and allow input of environmental conditions. With these new data, we hope to broaden our understanding of factors that control the venting and leakage of wells once they've been plugged and/or abandoned.

Hovan also continued working closely with the International Ocean Discovery Program serving as a co-instructor (along with Jon Lewis) aboard the

drilling vessel JOIDES Resolution during a School of Rock workshop while transiting from the Philippines to Australia. Later this fall, he will trudge all the way to Kauai to work with a colleague there to build new curricular materials that will integrate learning about climate change and ocean sediment.

Steve Hovan with Jon Lewis in front of the JOIDES Resolution, Subic Bay, Philippines.



Faculty News — Karen Rose Cercone

Karen Rose continues to happily teach non-majors classes for the Geoscience Department while she also serves as an assessment expert for grant projects (the NSF-funded Minor in Teamwork & Leadership) and for the Provost's Office. She keeps track of student learning outcomes for our department as well, and is already planning for our next five-year program review in 2019, as well as for our 50th anniversary coming up in the fall of 2018.

Karen Rose continues to edit the Pittsburgh Geological Society's

newsletter and website, and has also begun volunteering with the Westmoreland Heritage Trail. She spent the fall filling in for Steve Hovan as Interim Chair, and will be very happy to see him back in his corner office in the coming spring!



Karen Rose and her three-year-old border collie Mica spent more time doing obedience than agility in 2017, and have some nice progress to report. Mica completed his AKC Companion Dog, Rally Novice, and Preferred Companion Dog Excellent titles — which makes his AKC registered name officially Blitzen's Schist Happens CD P-CDX BN RN!

Faculty News — Jon Lewis

Jon Lewis and the students of Team Tecto are as busy as ever. Jon made the most of his one-semester sabbatical in Spring 2016, culminating in a new 3-year NSF research grant to continue working on rock exhumation in eastern Taiwan. The project is another collaboration with Tim Byrne at UConn but in this case the IUP piece is more substantial, relying on the NSF Research in Undergraduate Institutions mechanism. The project, “Collaborative Research: RUI: Reconstructing the Plastic-to-Brittle Exhumation History of the Taiwan Metamorphic Core” will allow Jon to bring six IUP students to Taiwan during Summers to help with fieldwork. Their efforts will continue back on campus during the academic year, and as participants in IUP’s Research Experience for Summer Scholars program. Many of them will work to document microstructures using the new research-grade petrographic microscope in the Team Tecto lab. Yay!

Building on the short visit to Costa Rica last Summer, Jon and his longtime collaborator Walter Montero partnered with a recent graduate of the U. of Costa Rica, Maria Cristina Araya (now a PhD student at Bristol) to publish a provocative paper on a fault zone they argue is not only active, but that might serve as the boundary of a substantial tectonic sliver in Central America. The paper is open access so you can read it by going to: <http://rdcu.be/rWah>. Jon is working with Andy Newman (GA Tech) and Jeff Marshall (Cal Poly Pomona) to submit an NSF proposal to do GPS geodesy, tectonic geomorphology and structural geology on this important tectonic boundary. Stay tuned. Jon will present some of this work at the AGU meeting in New Orleans this December.

Speaking of AGU, Jon and his co-PI (and Pgh neighbor) on the newly renewed STEMSEAS project (Sharon Cooper from Columbia U.) will

convene an education session in New Orleans with NSF Program Officer, Brandon Jones. The session focuses on the fact that there is room for much more progress on the diversity front in the geosciences. The response was strong and they will host two oral sessions and a poster session. If you’re going to be at AGU, look for us on Tuesday in sessions ED21C, ED22B and ED23B. We’ll also be attending the Ocean Sciences meeting in

Jon Lewis and STEMSEAS participants aboard ship in 2016



February (Portland, OR) and the ASLO meeting in June (Victoria, BC) to focus on diversity issues and to present what we have learned from STEMSEAS and related programs.

On the topic of related programs, Jon partnered with Steve Hovan to write an NSF workshop proposal that was successful. They were able to secure funding that enabled them to work with Sharon Cooper, Lisa White (UC Berkeley Museum of Paleontology) and Mark Leckie (UMass) to run a School of Rock (SOR) for the International Ocean Discovery Program (IODP) on the US drilling vessel JOIDES/Resolution. The extra funds were necessary because the ship was making a long transit from the Philippines to Australia. They worked with Sharon Cooper to host an innovative

Faculty News — Jon Lewis

diversity-themed SOR that brought young scientists together with K12 teachers from nearby diverse communities. The goal was to focus on cutting-edge IODP science and look for ways to broaden participation to include communities that we don't see in large numbers in geoscience overall, and in marine geology and oceanography in particular. The workshop, run in late Summer, has already resulted in one new NSF proposal. We fully expect more good things to come from it. Two of our participants will be Invited Speakers in our session at AGU. If you're in New Orleans, please try to come hear Rachel Bernard and Kerrita Mayfield present talks!

IUP students mapping structures in West Virginia



Team Tecto is happy to report that our most recent graduates are doing well. Cate Bressers is a grad student in seismology at Penn State. Allie Berry is working at Mountain Research in Altoona but also eyeing graduate school in the future.

As already mentioned, the STEMSEAS project has been renewed (for 3 years). We are thrilled about it and aim to run five different ship transits this coming year. We now have the URL: STEMSEAS.org so you can find us easily. If interested please follow us on FaceBook (<https://www.facebook.com/stemseas/>), WordPress (<https://stemseas.wordpress.com/>) and/or our own webpage (<http://usoceandiscovery.org/stemseas-2/>). Jon and Sharon are hoping for similar application pressure as in our first year, including applications from IUP students. If you know anyone that is STEM-curious and in their early days as an undergraduate, point them our way. In fact, if you know anyone at a community college that might be thinking of majoring in a STEM field, please share this opportunity with them.

Now to the rest of the team (i.e., the important ones). Amy Clegg continues working to understand the plastic strain recorded in rocks of the eastern Central Range of Taiwan by petrographic analyses of oriented thin sections. Our new microscope in lab will be a big help. Joining Amy in trying to graduate very soon is senior Caleb McCombie. Newly arriving geoscience majors that have come on board are Ross Bolesta, Lindsey Aman, and Shane Parker. This trio will likely be accompanying Jon for field work in Taiwan next July.

If you would like to read more about the details of any of Jon's research projects, here are links to his original NSF grant proposals:

STEMSEAS:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1701174&HistoricalAwards=false

SCHOOL OF ROCK:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1734023&HistoricalAwards=false

TAIWAN

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1650157&HistoricalAwards=false

Faculty News — Ken Coles

This fall, students in GEOS 342 Stellar Astronomy made a two-day trip to Greenbank Radio Observatory in West Virginia. Adapting well to the absence of cell signals in the National Radio Quiet Zone, they undertook observations of the Milky Way, other galaxies, and various deep-space radio sources using the 21-cm hydrogen emission line. It would be great to get a radio dish installed at IUP some day for longer-term studies.

focal length and optical images. Costs for the materials were shared by the grant PAESTA has through Penn State University and by the Geoscience Department.

IUP Stellar Astronomy students visiting Greenbank WV



Ken reaches Mars—or at least its marker!



Another telescope connection also came in October at the workshop for the Pennsylvania Earth Science Teachers Association (PAESTA). Dr. Cercone organized an invitation to the group to hold a conference at IUP. In the morning session we made telescopes from Galileoscope kits after experimenting with the optics to understand



Students got to collect their own data

Once again I volunteered as an exhibitor for the International Occultation Timing Association (IOTA) at the Northeast Astronomy Forum show in Suffern, NY in April. While western Pennsylvania is often too cloudy for measuring asteroids by observing the stars they block, this show is a chance to recruit amateurs around the U.S. to the effort, which makes more precise measurements of asteroid size and shape than any other method, and which requires mobile observers.

Faculty News — Ken Coles

The IUP Planetarium continues to work fairly well in spite of aging equipment and expiring bulbs, some of which we can no longer replace. A generous donation of extra parts from West Virginia Wesleyan college, which recently decommissioned an identical planetarium projector, has been a great help. IUP students are learning to operate the planetarium so they can present a public show at the end of the Fall semester. Another show in honor of the 50th anniversary of the planetarium took place in May (see article below).

Also in April and May were a number of shows on the total solar eclipse that happened August 21. Everyone in attendance got a pair of eclipse glasses, courtesy of the Geoscience Department. After that, it made sense to go see the eclipse in person, which I hope many of you got to do. My wife Priscilla and I went to her cousin's house in the Oregon hills, where we got a fine view.

Make your plans for the next total solar eclipse in the U.S. on April 8, 2024!

The 2017 solar eclipse as seen in Oregon



50th Anniversary of the IUP Planetarium

You may have seen the article in the Summer 2017 issue of IUP Magazine about the planetarium. The author, Bob Fulton, tracked down many forgotten details, including the date of the first program



on February 6, 1967. We also came across a copy of a letter from Prof. Bob Woodard to the Spitz Company in the spring of 1967 asking for an extra copy of the operating manual. He wanted it to train a "promising student" to run the facility - none other than (now) Prof. Emerita Connie Sutton. Prof. Sutton and newly retired Prof. of Physics Ron Freda both returned to share duties with Ken Coles in presenting an anniversary show to the public on May 16, 2017. While plans for the future are not yet determined, we hope that a planetarium will be a part of the future of Geoscience at IUP.

Faculty News — Katie Farnsworth

Hello again! I cannot believe it has been another year already and it is time to write my GeoTidings writeup. I was once again lucky to enjoy the holidays and ring in the new year in Nicaragua. It was especially wonderful to explore the land of lakes and volcanoes with family.

Katie visits an active volcano in Nicaragua last winter.



The return to cold Pennsylvania was eased by the fun once again of volunteering with that National Ocean Sciences Bowl regional competition at Youngstown State. This was my 20th year volunteering for this great quiz bowl competition focused on the ocean sciences. The students every year continue to amaze me. I will be taking volunteers from IUP to the Pittsburgh Zoo in February of 2018 for another fun day.

It was great to see many of you in March of this past year at the Alumni event we held in conjunction with the NEGSA meeting in Pittsburgh. It was great to catch up with former students and find out where they are and what they are up to. Rumor has it that our department is about to have a big birthday, so we will hold another gathering soon!

The summer was a busy one, with ongoing and new projects in the local area focusing on streams and stormwater. Our project on stormwater issues along Marsh Run here in Indiana became extremely relevant as our tiny town was hit with three intense storms this summer, resulting in significant flooding in town and around the area. We have been working with the Indiana Stormwater Education Partnership for the past 2 years, and those connections have helped us partner with both White Township and the Borough and provide them with important

information about Marsh Run and impervious runoff. We also recently received a grant with the Biology Department to expand our stream monitoring network to the other streams in town (McCarthy, Whites and Stoney Runs) and to combine the hydrological studies with biological surveys to assess the quality of the streams, and to get high school and middle school students involved in the sampling, as well. We also gave an Indiana Friends of the Park presentation on “Stormwater, Rain Gardens and Rain Barrels” at the end of the summer. We will be doing another of those in May, and look forward to spreading the word on how home and business owners can help mitigate some of the stormwater issues in our town.

This fall has been busy with the new science building committee meeting more frequently, as we have finally hired the design firm and will soon start our meetings with them to move this project forward. It also was a Coastal Geology year, which means some great fieldtrips with students to Lake Erie and Delaware. I always enjoy teaching this class!

The Coastal Geology class at Presque Isle



Sadly I will not be headed to the tropics for the holidays this winter break. I will have to make do with dreaming of the beach instead. To help with that, I co-host a ukulele jam night each month at a local brew pub. We have been having over 30 people come each month and hope to keep it up. I was able to revisit my original ukulele club on the beach in Santa Cruz while visiting there last summer. While the local brew pub here in Indiana is great, it still isn't the beach!

Faculty News — Nick Deardorff

My home life at the moment revolves around two rambunctious boys (2 and 4.5 years old) who are steadily tearing my house to pieces and driving their mother and me insane (the good kind of insane). They are crazy cute and, somehow, simultaneously incessantly making trouble. I am also in my fifth year at IUP and in the process of applying for promotion and tenure. Needless to say, it feels like it has been a busy year that has gone by very quickly.

My research lab continues to focus on completing crystallization experiments on basaltic tephra using a Deltec tube furnace to replicate pyroclast recycling textures and signatures. This process involves heating basaltic tephra up to ~700°C-

and crystallization. While this work continues, I published some preliminary findings in *Scientific Reports* (Deardorff and Cashman, 2017; doi: 10.1038/srep46364) earlier this year and I presented our most recent findings at the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) conference in Portland, OR.

While enjoying the microbrews and fine cuisine of the Pacific Northwest, I also ventured out to Mt. Hood (see photo below) on a short field trip to explore one of the Cascade Range's active volcanoes (last erupted in late 18th century) and the tallest peak in Oregon. While I did not have a chance to do any August skiing, I did explore the

historic Timberline Lodge and poke around at some fascinating debris flow and lahar deposits.

View of Mt. Hood from the north, within Hood River Valley. This valley is composed mostly of orchards bearing a wide variety of fruits and nuts and bounded by large hills formed from basaltic andesite and andesite lava flows, some from Mt. Hood and others from the Columbia River Basalts.



1150°C and then analyzing the samples with a scanning electron microscope to observe changes in the extent of crystallization. The purpose of this research is to determine the effects of reheating and recycling of pyroclasts (tephra) falling back into a volcanic vent, as reheating past the glass transition temperature will induce element diffusion

In other news, at the moment I, along with a faculty member from the Geography department at IUP, are organizing a summer 2018 course to Iceland. The course will focus on the sustainability of Iceland. We will focus on the Geography and Geology of Iceland and how the land has shaped the people and how people are now using geothermal energy sources to efficiently and sustainably power their cities, grow crops in greenhouses, use geothermally heated water for bathing, and much

much more. It should be a fantastic trip and I hope to use it as a reconnaissance trip from which I'll be able to run a straight Geoscience summer field course at some point in the near future. As long as we can find enough students in the next month or two, I should have some interesting stories and photos to share in Geotidings next year. Stay tuned!

Faculty News — Greg Mount

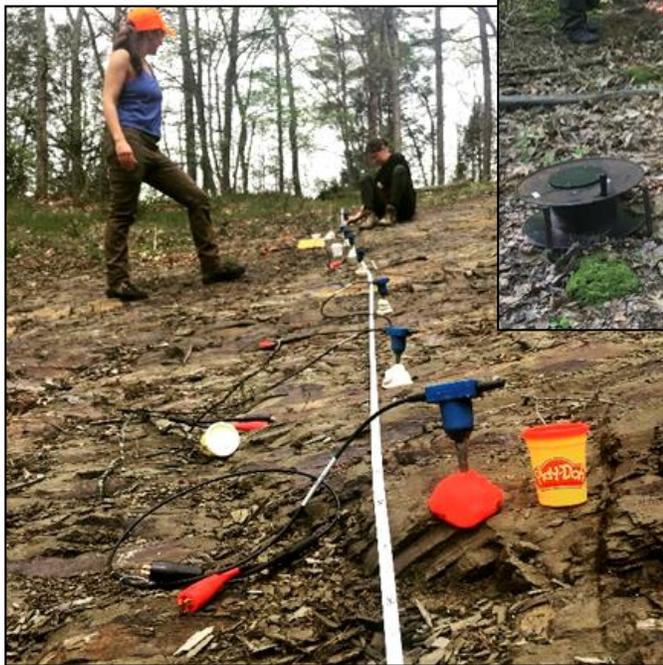
If you are reading this you can assume that I have almost made it halfway through my fourth year here.

My research students and I have participated in projects that range from geomorphic characterizations to ecohydrology investigations in a host of states (VA, WV, DE, NJ, NY, FL, OH, MD). We have presented our work at national and regional conferences, including Northeast GSA and the American Geophysical Union.

We participated in this year's Field Conference of Pennsylvania Geologists that was headquartered in State College, showing off our work at the Shale Hills Critical Zone Observatory. Oh, and we also got a drone to enable a new perspective on fieldwork and to enhance our research communications.

You can follow along with us on Instagram: [drgjmount](https://www.instagram.com/drgjmount). Or you can check out criticalzone.org to read about our work at Shale Hills.

Several hundred geologists from across the state visiting the critical zone observatory site in the Shale Hills of Pennsylvania.



Faculty News — Jonathan Warnock

Another year gone by faster than could be believed. This semester marks my fifth at IUP. It is a milestone in that it is the last (for now) that I'll be teaching a course for the first time. I'm looking forward to semesters without building new lectures and labs. Who am I kidding? I'm looking forward to semesters where less than a semester's worth of lectures and labs are built.

My first time class this semester is Paleontology, which has been a lot of fun. I've enjoyed teaching new concepts to the GEOS students, and balancing their education with a healthy dose of biology. One of the highlights of the course was a two week long critical thinking exercise in taphonomy, an aspect of paleontological analysis which covers everything that happens to an organism from death to fossilization to discovery.

Weyandt 25 was turned into an excavation site (many thanks to Nick Deardorff for providing enough deer bones to make this work!) composed of four sedimentary facies. Students had to map, identify, and describe the bones, then provide data driven hypotheses as to what the four facies represented and which sedimentary and biological processes had altered the bones. It was a great success, capped off with well written reports and a lot of positive student feedback.

Dr. Warnock's Paleontology students reconstruct the "bone puzzle" he created in Weyandt 25

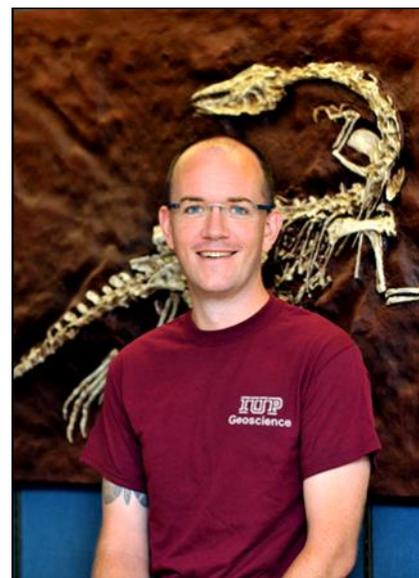


As a last note on the pedagogical front, I've become co-chair of the IUP Sustainability Studies minor. It's a big time commitment, but I think I can make some positive changes.

This has been a busy year for science as well.

Research has continued with three students doing their thesis projects in the lab on a wide range of topics (stable isotopes of fossil bone, sedimentary geochemistry, and diatom proxy development). I've also got three sophomores getting a taste for science, creating a record of nutrient cycling rates in the Southern Ocean over the course of a West Antarctic Ice Sheet collapse. 2017 has been a busy year for publishing, with five manuscripts accepted. Two of those represent my first peer-reviewed dinosaur publications, a huge personal milestone, and the other three are diatom-based climate records. I'm hoping to get some writing done over winter break to keep the momentum moving.

Finally, it would be silly of me to ignore the summer. This summer the field course was my responsibility. I absolutely would not have been able to make the trip happen without the help of Tom Moore. Not only did he help keep me sane, wrangle students, and maintain a well-running camp, he showed off beautiful textbook sedimentary geology to our students. We spent three weeks with 18 students roaming Colorado and Utah. The course focused on sedimentology, stratigraphy, and paleontology. Despite a number of challenges (nearly daily problems with the vans, snow for our first five days, the unavoidable medical issues...). In the end the students learned a lot. They were a great group who pulled together to help each other and did some good work.



Faculty News — Yvonne Branan '01



Things have continued to go well for me here at IUP and I am enjoying my time with students. Many teachable moments this year: the impressive amount of flooding we had locally (in my home and my office!), a busy hurricane season, an east coast earthquake and more! It's always great to have recent events to get students to talk about. I was lucky enough to find time

to travel to Chicago for a classroom technology conference. And I also attended the ASCE Pittsburgh's annual Sustainability Conference, where I learned about some fantastic things going on here in western PA. I'm gearing up to teach Introduction to Sustainability in the Spring and look forward to working with a variety of majors in that interdisciplinary class.

Faculty News — Sajad Hamidi (ENVE)

It is my second year at IUP. In addition to teaching and research, I have had the opportunity to work with wonderful people to develop the proposal for new environmental engineering program for IUP. Fortunately, the PASSHE Board of Governors approved the proposal this summer and we have officially begun the first engineering program here at IUP. We had several successful meetings with other colleagues and advisory board to improve our engineering program and make it unique. We had also several meetings with students who showed interest in new program.

While I am writing this note, I am working to prepare my classes for next semester. I am very excited about the fact that I am the one who will teach the first engineering course at IUP. This new course is "Introduction to Environmental Engineering". I met personally with some of the students who enrolled in this class for spring 2018, and I found them very

motivated and eager to learn about environmental challenges. This motivates me even more to work hard and build an interactive class environment. I am sure we will have a very successful class to meet our learning goals.

At the same time, I have been working on my research. It is an ongoing effort toward multi-disciplinary and collaborative research on water resources and environmental fluid dynamics, especially related to environmental issues in Great Lakes. I published one book chapter and two journal papers recently. As I mentioned the focus of my publications was on hydrodynamic and biogeochemical

modeling of Great Lakes coastal regions to address environmental problems in this precious natural body of water. In addition to that, I have had five presentations in international and national conferences. My research outcomes on environmental challenges will enrich my classes. I plan to involve environmental engineering students in my research activities in future.

Dr. Hamidi meeting with future Environmental Engineers



Adjunct Professor Tom Moore '76

After finishing up with the GEOS 119 Geology of Energy Resources non-major's class last Fall (2016), the rearrangement of the curriculum lineup was for GEOS 324 Geology of Oil and Gas to be moved to the fall of 2017. So, when I heard that Dr. Warnock and students were planning to drive from Indiana to Price, Utah, I thought 'what about all the geology between here and there?' and wheedled permission to go along and write a road guide to cover the trip. The great thing about geology is you can find some anywhere, even Illinois, if you are willing to look in weedy ditches, at decidedly unspectacular roadcuts, or in the subsurface. With various experiences, I could pretty well cover the entire route geologically and added a good bit of history and local culture at various spots in what became a tome of a road guide, stealing prolifically from other authors.

Students on the Utah trip



I had a blast putting it together and at least a few of the students read parts of it rather than stare at the endless Plains or sleep catatonically, which is about all you can do for great lengths of the trip. After reaching the Rockies, we got to buy new tires, fry and replace van brakes, set up camp

repeatedly in the dark and cold, sleep in wet snow, and all the regular joys of field trips...it was like déjà vu all over again from my days as a student. Although Rifle Gap was a snowy bust, the geology of Colorado National Monument, the Book Cliffs, and the San Rafael Swell helped offset those miseries.

Once reaching the Cleveland-Lloyd Dinosaur Quarry, I knew full well I was out of my element (I'm not into groveling for dino parts), so I got to be camp boss and drill sergeant, which I am sure the not-morning-people really enjoyed. Jonathan and the other paleontologists did a great job with the students there. Unforeseen conflict with a NPRA rodeo event

in Moab Memorial Day weekend caused us to have to 'wing it' for the latter parts of the field excursions and the return trip, but I am sure the students will remember our relaxing drive on the easily van-accessible park service road into and back out of our buggy campsite at Dinosaur National Monument. Again, as is always the case, the geology offset the challenges there and on back through scenic Colorado. The same is hard to say about sleeping among the tornado warnings in western Kansas, but we lost no one in Oz and got home safe, if not still mentally sound.

Unfortunately, I was not able to teach GEOS 324 in 2017 due to university budget constraints. We're hoping to be able to offer it to our energy students in the summer or fall of 2018. In the meantime, I just began talking with Beaver County Community College, who will begin offering courses in Waynesburg, about maybe doing an energy course for them here. Consulting work in the energy industry is still pretty slow, but there are signs that the turnaround is beginning. It will be a long, slow climb out. I have done a couple pro bono consulting jobs for individuals, leased-out my farm's mineral rights, and have been being politically active at the county committee level. We helped select party candidates and now the nominee for the special election to fill a vacated U.S. Congress seat—providing these folks with background info on the importance of energy to Southwest Pennsylvania's and our nation's economy.

On the personal side, Muffie still cares for her mother (98, with birthday in December) full time, back and forth between her mom's house and our place in Mt. Nebo in the North Hills section of Pittsburgh. Daughter Aileen works in the Trust Department for Arvest Bank in Lowell, AR, helping direct funds of those now-rich early investors in Sam Walton's enterprises, putting her Fine Arts degree to full use I am sure. Son Duane is doing the aeronautical engineering and scheduling of the flight testing of what will be Bombardier's new large corporate jet in Wichita, KS. Duane and his wife Kaley have the three grandchildren, Gabriel, Lydia and Elijah; Aileen and her husband Nathan are satisfied with cats and litterboxes rather than diapers.

Emeritus Faculty News — John Taylor '75

The past year has been a tumultuous one for the Taylor family. After preaching to students for decades about the foolishness of building on a floodplain, John ignored his own advice and moved the family to a house near the Indiana Mall in late April, right next to McCarthy Run, which he now refers to as “The Mighty McCarthy” (among other things not fit for print). Work continues on reconstruction of the basement after heavy rains in mid-June converted it to a wading pool roughly 13” deep. However, John is (foolishly?) optimistic that a recently installed, interior french drain with two sump pumps will suffice to prevent similar inundation in the future. Hopefully, that is the case, because the master plan is for much of that basement to serve as the repository for the ponderous volume of specialized literature on trilobites currently housed in his office in Weyandt Hall, when it is demolished a few years from now. Already christened the “Taylor Field Station” by Dr. Farnsworth, who promptly installed a rain gauge in June and plans to add a data logger or two on the Mighty McCarthy, the new property will then also be home to the “Taylor Institute” (for trilobite studies) once the reprint collection and some cabinets full of trilobites have been transferred from IUP. Alumni are welcome to stop by the Institute for a tour of the facilities anytime they are in town.

John did escape the incessant demands of the new residence a few times this fall, first in late September to spend a few days with his colleague Paul Myrow

at Colorado College. While there, John provided a seminar on his Alaska research to the Geology Department, and also squeezed in some fieldwork with Paul at Dinosaur National Monument in northeastern Utah. No, he hasn't lost his senses and climbed up-section into the Mesozoic; there are older strata exposed in the monument, and John is describing

some new species of the middle Cambrian trilobite genus *Elrathiella* from the Lodore Formation in a lovely canyon known as Jones Hole.

Later in the fall, John enjoyed another trip west, this time to the national meeting of the GSA in Seattle, where he presented one talk and co-authored a second one on Cambrian faunas from Alaska. He was delighted to see at least four IUP Geoscience alumni in the audience at his presentation (Tyler Allen, Meghan Barlow, John Kearney, and Samantha Ritzer).

Although he greatly enjoyed the conference in Seattle, he had an even better time after the meeting on a short birding adventure with brother Wil on

the Washington coast. He is pleased to report that the Black Turnstone and Red-breasted Sapsucker, two species that eluded him on the coast of British Columbia after GSA in 2014, had the decency to show up this time. He was also relieved to discover, while pursuing the turnstones on the jetties, that the old legs could still handle a significant amount of boulder-hopping, despite the many years that have passed since his last trip to equally rocky shores of Newfoundland.

John Taylor looking for that elusive turnstone ...



IUP's 2017 Summer Field Workshop: GEOS 490 Field Research in Utah



Thanks to support from IUP alumni and hours of planning and preparation put in by Professors Jonathan Warnock and Tom Moore '76, a group of eighteen IUP undergraduate geology majors got to have the geologic experience of a lifetime in 2017.

They spent a week on the road studying the sedimentology and stratigraphy of Utah, including the Colorado Plateau, the Book Cliffs and the Little Grand Canyon of the San Rafael River.

This was followed by several days spent excavating dinosaur fossils in the Cleveland-Lloyd Quarry. This classic locality is still among the most puzzling dinosaur fossil preservation sites in the world. Our IUP undergraduates got to join a group of scientists and graduate students from across the county, gathering data in an attempt to discover why so many dinosaurs were trapped and preserved at this unique fossil site. Other dinosaur sites were visited on the trip back to IUP.



“The best geologists are the ones who have seen the most rocks.”

Field workshop classes like this one have been cited by graduate schools and geologic employers as one of the greatest strengths of our department. As always, we want to send a shout-out to our alumni who continue to ‘pay it forward’ by supporting field trips for current students as a way of thanking other alumni for their own past support.

Please Stay in Touch!

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Geological Society of IUP (student page)
<https://www.facebook.com/Geological-Society-of-IUP-119175556784/>

THANKS FOR YOUR SUPPORT!

This year, alumni donations paid for lab analysis for student research and sent several students to national conferences where they presented their results. If you have the ability and desire to continue supporting our students, please consider donating to any of the following funds in the IUP Foundation: the Geoscience General Fund (224530); the Joseph C. Clark Research Scholarship (630545); the Walter Granata Memorial Fund (224784); the Paul Prince Memorial Fund (224783) and the Next Generation Field Geology Fund (224789).