

Newsletter

College of Physical and Mathematical Sciences

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BYU Geology Book Maps Some Backyard Treasures

BYU geology professors Lehi Hintze and Bart Kowallis make Utah's geology accessible with the third edition of "Geologic History of Utah." The book serves as a field guide to Utah's rocks that can be used by both professionals and your average tourist alike.

"We have made the geology of Utah more accessible to the public than any other state," said Hintze, now retired. "This is an extremely detailed compilation and it has been prepared by consulting everyone that we can think of and then some."



The book serves as a geologic encyclopedia of seismic proportion. It divides Utah into 116 regions, detailing the types of rocks found in the region along with the time period when the rocks were created. It has the rocks of Utah dated all the way back to the Archean Period, roughly 2.5 billion years ago.

Most visitor centers and bookstores in Utah's national and state parks sell the book. Since its first edition in 1972, more than 25,000 copies have been sold.

Hiking through Zion National Park, one can be mystified by the mazes of slot canyons while also using "Geologic History of Utah" to estimate how old the rocks that make up the walls of the natural tunnels are. Gazing off the top of Mount Timpanogos, one can use this book to analyze the jutting geologic features all around.

While the red rocks of Southern Utah are the most famous geologic aspect of Utah, even the area surrounding Salt Lake City provides a choice experience for the informed observer.

"The Salt Lake area has more variety of geology than any other place that I can think of on earth," Hintze said. "You can look at one side of the valley and it's got one type of geology in the Wasatch Range; the other side the mountains have a completely different geology. The geology of the Wasatch Range is much more complicated than the geology of the Grand Canyon."

Utah geologic gems as recommended by Professor Bart Kowallis:

- Observe unique features formed by a long geologic history and the relatively recent Wasatch Fault in Provo's Rock Canyon
- See traces of the only glacier to extend into Lake Bonneville in Little Cottonwood Canyon at the south end of Salt Lake Valley
- Find ancient marine invertebrates called trilobites at Antelope Springs, near the city of Delta
- Hunt for crystals at Topaz Mountain, also near Delta

No matter what plans may be for this spring break, "Geologic History of Utah" can be a useful guide to make any geologic adventure in Utah a little less rocky.

----BYU News

Important Dates & Events in the College

April 2009

Wed, Thurs, Fri, May 13-15

Moab Topology Conference
Contact: jpurcell@math.byu.edu

Saturday, May 16th

AstroFest Day
10:00 AM—4:00 PM
BYU Wilkinson Center
Free!

Monday—Thursday, June 1-4

2009 Graduate Workshop on
Zeta Functions, L-Functions and
their Applications @ UVU
Find details at:
<http://math.byu.edu/~doud/meeting/>

College Awards

- Douglas Corey of the Department of Mathematics Education, along with three other colleagues— Heather C. Hill, Harvard Graduate School of Education, Geoffrey C. Phelps and Robin Jacob, University of Michigan— was awarded a 4.5 million dollar grant from NSF to complete their study titled: *Investigating the Effect of Mathematical Knowledge for Teaching on Instruction and Student Outcomes*

- BYU computer science major Ilya Vinogradov has been chosen as a Microsoft Scholarship recipient.

Ilya, a native of the Republic of Kazakhstan, developed a love for computer science as a young boy in elementary school. He moved to the United States in 2005 and studied at various colleges along the East Coast before receiving his acceptance letter to BYU. He transferred to BYU in 2007 and has been studying computer science in Provo ever since. Upon graduation, Ilya plans to work in the software industry; in particular, he is interested in control systems.

Ilya is one of three students from BYU to receive the honor for the 2009-2010 academic year, a remarkable feat, since Microsoft accepts thousands of applications for the scholarship from all across North America. Commenting on the honor, Rian Sacquitne, Microsoft's College Relations liaison with BYU remarked that the number of BYU students receiving the award is "impressive, and BYU should be proud."

The award will cover Ilya's tuition for the Fall 2009 and Winter 2010 semesters and recognizes Ilya's "passion for software, academic excellence, and ability to make a difference in the software industry."

Ilya is the second computer science student in as many years to be named a Microsoft Scholarship recipient. Sambridi Gautam, currently a junior in the CS program at BYU, received the award for the 2008-2009 academic year.



Top Mathematics Recruit Powers Cougar

‘Mathletes’ to Top-25 Finish



Paced by a strong performance by true freshman Sam Dittmer – a national math champ back in high school – the BYU math squad finished the season ranked in the top 25.

The highly touted recruit proved worthy of seeing action in his first year and now leaves some big shoes to fill as he sets his sights on a Church mission to Albania.

Dittmer and teammates Donald Sampson and Michael Griffin placed 23rd out of 405 college teams during the six-hour-long William Lowell Putnam Mathematical Competition.

While nearly half of the competitors walked away without a single point, Dittmer contributed 66 toward the Cougars’ score of 109 – good enough to earn individual honorable mention honors.

“That’s amazing for Sam to step in and perform that well as a freshman,” said BYU math department chair Tyler Jarvis.

The notoriously difficult Putnam exam proved no less daunting this year. Try this problem on for size:

Demonstrate the largest possible radius of a circle contained in a four-dimensional hypercube of side length 1.

Confused? You’ve got company. Only 19 of the nation’s top 189 students nailed that one.

Surprisingly, contestants agree that the mechanics involved come easy, usually requiring basic calculus or trigonometry. The hard part is the extreme problem-solving nature of the exam.

“Typically it’s like, ‘Here’s a problem. Evaluate the problem, organize its implications, and rigorously prove something useful – or not useful as the case may be – about the problem,’” said BYU junior Donald Sampson, whose 30 points put him above the 90th percentile nationally.

To prepare his team, BYU coach Tiancheng Ouyang invited world-class problem solver Gengzhe Chang to campus for specialized training sessions. A former coach of a Chinese math olympiad team, Chang covered techniques for quickly solving functional equations, among other things. Jarvis says such intense, hands-on training is part of the reason BYU’s math majors graduate to a wide variety of professional fields.

The mathletes’ season also saw a head-to-head win against in-state rival University of Utah in March. In that match-up, BYU’s top three undergrads posted 165 points against 50 from the Utes’ top three.

Looking ahead to next season, the BYU coaches say they want to build on this year’s performance – but they’re going to have to do it with a different lineup.

Both Sampson and Griffin return and have high expectations for next season. Sampson will be a senior looking for that signature performance to impress grad school scouts. Griffin will use the off-season to shake any remaining mission rust. Before his two mathless years of service in Bangalore, India, Griffin scored 37 points as a freshman on the 2005 Putnam exam. On this year’s test, Griffin managed 13 points – the drop-off clearly a function of time away from school.

“Mission service is definitely a factor,” Griffin said. “You fall out of condition. When you come back you have to relearn stuff. It was really interesting taking class last semester to prepare for it. I had no idea how much I’d forgotten.”

The third and final roster spot won’t be decided until next fall, coaches say. Don’t be surprised if BYU lands another talented high school recruit ready to contribute immediately.

Despite his Ph.D. in mathematics from Princeton, Jarvis recently sought tutoring from the athletics department on how to find recruits.

“One of the things those teams have, that we don’t have yet, is a network of former athletes always scouting for them, always on the lookout for LDS kids and others who have talent and would fit in at BYU, and they refer them back and make that connection,” Jarvis said. “That’s something that would help us.”

And on that note, Jarvis welcomes tips from BYU fans around the country about their local high school math whiz. Send details and game film to Jarvis@math.byu.edu.

--BYU News

College Publications

Chemistry & Biochemistry

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Computer Science

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Mathematics Education

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Statistics