

ITconnections

Information technology applications at the University of Oregon

FALL 2007



Esther Jacobson-Tepfer (right) traces her route through the Mongolian Altai Mountains as her team of cartographers look on (left to right: InfoGraphics Lab Assistant Director Ken Kato, Research Cartographer Alethea Steingisser, Interactive Cartography Project Manager Erik Steiner, and InfoGraphics Lab Director Jim Meacham).

IT IN RESEARCH

Mongolian Altai Inventory
CAMCOR's John Donovan
Adventures in Linguistics

IT@UO

Top Ten Library Resources
NWACC Award Winners

COLUMNS

CIO's Message
.edu Tech Roundup



A message from our CIO

A little over a year ago I took part in a retreat where at one point we were asked to envision what the University of Oregon might be like in ten or fifteen years. My first thought was that many of our faculty and students might not do much of their work on the home campus. "In ten or fifteen years," I predicted, "faculty and students will

spend a significant amount of time doing their research and teaching in the field, perhaps only returning to Eugene to write about their findings and plan their next adventure." Needless to say, my vision wasn't shared by some of my colleagues who had spent their careers in the traditional classroom.

In this edition of *IT Connections*, we are introduced to several faculty and students who conduct their research and teaching outside the traditional classroom, some halfway around the world, some underground in specialized labs. They do this, not because they love to travel to exotic places (okay...maybe there is a little of that), but because the things they are studying are located far away, or—in the case of nanoscience—in places that can only be studied with electron microscopes sitting on solid bedrock. What is common to these and many other academic projects is that information technology plays a prominent part, not only in their research work, but also in communicating with colleagues and in making their findings accessible to others.

The projects described in this issue give us insight into the ways the university must adapt to serve the needs of our faculty and students in the years to come. In the InfoGraphics Lab's collaborative project with Esther Jacobson-Tepfer in the Mongolian Altai, we see the use of handheld geographic positioning systems, geographic information systems, and other specialized software for cataloging and mapping. The Oregon Nanoscience and Microtechnologies Institute

(ONAMI) has its own set of sophisticated scientific instruments to generate data that is stored, and later analyzed, by specialized software—some of which was developed by the Oregon team themselves to address their specific needs. And even in the Bhutan project, acoustical and linguistic analysis is done using specialized software and other IT resources.

Yet one notices something else in these stories that speak to our need to develop IT resources to support academic programs, and that is the degree to which research depends on collaboration with colleagues. In the Mongolian Altai project, collaboration might extend to a team of Russian archaeologists or the director of the Mongolian Institute of Archaeology. For ONAMI, it could include colleagues at UC Berkeley or other world-class research centers. And for Linguistics, it will likely involve people in the culture being studied. In each of these situations, building human partnerships is vital, but so too is developing the IT support infrastructure and services that will facilitate research and teaching/learning.

Eugene is a wonderful place to have as a home base for an academic life dedicated to research and teaching. Yet much of what we need to study is not in the classroom, but in distant lands, or it is observable only with specialized instruments. Not just in the years ahead, but today, we must provide IT resources to support this work.

Don Harris
VP for Information Services and CIO
cio@uoregon.edu



IT CONNECTIONS VOL. 1 #4.2

IT Connections is published quarterly by the Office of the Vice Provost for Information Services and CIO

© University of Oregon 2007

Editorial and Writing

Joyce Winslow jwins@uoregon.edu
Vickie Nelson vmn@uoregon.edu

Design and Production

Joyce Winslow jwins@uoregon.edu

Photography

Dave Ragsdale dave@uoregon.edu

VP for Information Services and CIO

Don Harris cio@uoregon.edu

<http://it.uoregon.edu/itnews/>

Vickie Nelson

Second Thoughts on Second Life?

Many businesses and universities are investing thousand of dollars in creating a Second Life presence. Now some people are questioning whether such investments are worthwhile. *Wired* editor and author of *The Long Tail*, Chris Anderson, doesn't think so. He closed down *Wired's* Second Life site and noted in his blog (http://www.longtail.com/the_long_tail/2007/07/why-i-gave-up-o.html) that the decision was due in part to what he called the "there's nobody there problem." He assigned an article on Second Life to a reporter whose article, "How Madison Avenue Is Wasting Millions on a Deserted Second Life," deals with commercial ventures in Second Life but may also have implications for the academic world. Read the *Wired* article at http://www.wired.com/techbiz/media/magazine/15-08/ff_sheep.

On the other hand...

University of New Orleans Offers Two Classes in Second Life

Probably no one knows better than citizens of New Orleans how swiftly a disaster can close an institution down. Although the University of New Orleans did not shut down after Hurricane Katrina, it did suffer electrical problems and wind damage and kept functioning by holding many classes online. This fall the university has an island in Second Life. It is offering two classes in the virtual reality environment and has plans for more classes in the spring of 2008. Officials hope that by having the virtual campus ready for instructors to set up classes quickly—and students and staff set up with avatars—UNO will be able to function successfully through future storms that may strike the state. Read the chronicle report at <http://chronicle.com/wiredcampus/index.php?id=2234>.

University of Washington Offers Google 101

Last winter Christophe Bisciglia, a 26-year-old Google engineer and a 2003 graduate of the University of Washington, began offering a Google 101 class at his alma mater. Designed during his creative time (Google gives its employees 10 percent of their time to work on innovative ideas of their own), the class offers students the chance to learn how to program the way they do it at Google, using many computers to solve a problem instead of one. Students who complete the five-week course may end up working for Google—or not. Google isn't worried about its competitors and hopes to extend Google 101 to other campuses soon. Read more at http://seattlepi.nwsourc.com/business/304299_google20.html.

University of Minnesota Treats Kids to High Tech Camp

Thirty middle schoolers created 3D films and programmed robotic dogs for a dance contest at a High Tech Camp held on the campus this summer. Designed to include minority children and girls who are sometimes shut out of quality high tech opportunities at a young age, the camp was organized and led by computing science and engineering graduate students. All children attended the camp for free with the University of Minnesota Center for Distributed Robotics and the university's Digital Technology Center picking up the \$300-per-child tab for the experience that organizers hope will stimulate an interest in technology in the children. Read the story at http://www1.umn.edu/umnnews/news_details.php?release=070810_3445&page=UMNN.

Oklahoma Libraries Introduce BOSS

This August the Oklahoma State University libraries unveiled an alternative library catalog called Big Orange Search System, or BOSS. Powered by AquaBrowser from Medialab Solutions BV, BOSS uses a faceted search technology and gives users the chance to refine their search by format, topic, language, date, geography and other characteristics that appear on the right of the search screen, next to standard card catalog entries. For instance, look up existentialism, and Boss offers—among other choices—the option of narrowing the term to its philosophical, literary, or psychological use. A user can click on an entry and get a "word cloud" of other terms associated with the topic on the left of the entry. Users who prefer the old online catalog to BOSS can still use it; it is now called Classic Catalog. Try Boss at <http://boss.library.okstate.edu/> or read more at <http://www.librarytechnology.org/lgt-displayarticle.pl?RC=12697>.

Columbia Receives Grant to Provide Google with Video Content

Google has awarded Columbia University a \$50,450 grant to help prepare and submit educational video to the Google Video site. The grant is part of Google's plan to add more meaningful content to the Google Video site, in particular course content from colleges and universities. Columbia's Digital Knowledge Ventures plans to create more than 50 hours of new content and to convert 38 hours of Columbia content already in MPEG2 format for the Google Video site. Content will include lectures, other course materials, and interviews in science, economy, history and world affairs. Read more at http://www.columbia.edu/cu/lweb/news/libraries/2007/2007-06-25.google_dkv.html.

Putting Themselves on the Map...

A UO art history professor collaborates with InfoGraphics Lab cartographers to document her ground-breaking research in Mongolia

Joyce Winslow
jwins@uoregon.edu

Esther Jacobson-Tepfer points to a squiggly blue line on the large map spread out before her on a table in the UO Department of Geography's InfoGraphics Lab. Her finger moves rapidly as she traces its path, citing points of interest along the route.

Weaving up, down, and around in an intricate pattern, the line follows approximately 300 miles of rugged terrain in the Altai Mountains of Northern Asia. It is the route taken by V.V. Sapozhnikov, a Russian geographer whose fascination with this area predates Jacobson-Tepfer's by a hundred years.

The few seconds it takes to trace the Russian's journey with her index finger belie the formidable obstacles travelers face in this remote region, including unpredictable extremes in weather, primitive roads, aggressive insects, and lethal outbreaks of marmot plague.

Jacobson-Tepfer's voice quickens as she recounts some of Sapozhnikov's discoveries and compares them to her own. For the past twelve summers, Jacobson-Tepfer and her colleagues have been documenting the surface archaeology and studying the ecology of ancient cultures in the Bayan Ölgii region of north-western Mongolia. Now, thanks to a recent grant from the National Endowment for the Humanities, the fruits of their labors are being preserved in two complementary forms: a richly illustrated interactive website and a published *Cultural Atlas of the Mongolian Altai*, both of which are designed and produced by the UO's award-winning InfoGraphics Lab.



Esther Jacobson-Tepfer and some of her research team at the Ölgii airport in Mongolia, getting ready to take off for a month in the field. (From left: Esther Jacobson-Tepfer, airport worker and friend Darkhan, student field research assistant Melissa Baird, Kazakh pilot, Gary Tepfer, and Jim Meacham).

Serendipity, passionate commitment, and a pioneering spirit have marked the Altai project from the beginning. Jacobson-Tepfer's interest in Chinese art history—the field in which she earned her doctorate—eventually led her to explore the interconnections between the Chinese artistic traditions of the Zhou-Han period and those of early nomads inhabiting the steppes on China's borders.

An invitation to a professional conference in Mongolia and her scholarly exchanges with Vladimir Kubarev, a Russian colleague with similar interests, were the catalysts for her first expedition to the Russian Altai region in 1989. Five years later, with a team that included Kubarev, Russian archaeologists, and the director of the Mongolian Institute of Archaeology, Damdinsurenjin Tseveendorj, she began to focus her research on the Mongolian Altai.

Initially the team was attracted to the wealth of petroglyphs in the area, but in recent years Jacobson-Tepfer has been increasingly drawn to the rock art and ritual sites of the Mongolian Altai. She is captivated by what she wistfully calls “the expressive nature of this work...the mystery.” Who were the nomads who made this rugged land their home? What was the meaning of their ritualistic stone circles and Stonehenge-like monuments, and why

did they site them where they did? The answers to these questions may never entirely be known, but it is obvious from her fervor when she speaks of them that Jacobson-Tepfer has found her life's work.

But along with the fervor there is also an unmistakable note of urgency in Jacobson-Tepfer's voice when she speaks of her mission. The Altai region was recently opened to tourism, inviting vandalism and theft of precious artifacts, and its fragile ecology faces threats from both mining interests and climate change. Priceless cultural resources are in danger of being lost forever. Jacobson-Tepfer's research, first with her Russian and Mongolian colleagues and now with the Mongolian Altai Inventory team, is the only link to thousands of years of Altai culture dating back to the late Pleistocene period, and the only resource for future scholars. In recognition of this, the Mongolian Altai Inventory project has become part of a larger international cultural preservation effort sponsored by UNESCO's World Heritage Centre and several Mongolian institutions.

Context is important in this work. The team does not simply document the surface archaeology of the study area, but takes into account its relationship to the landscape. The great stone altars and burial mounds, the ancient petroglyphs, and the ritual sites and stone images, were all sited deliberately. Jacobson-Tepfer notes that the ritual sites were frequently located in a plain, near rivers, facing eastward toward the mountains. “They seem to be interrelated to elements of the landscape between earth and sky,” she says.

Preserving and interpreting all this data might have been more difficult were it not for web technology (“a great way to archive photos!”), advances in GIS (Geographic Information Systems) software, and two lucky personal connections: Jacobson-Tepfer's close working relationship with Jim Meacham, the director of the UO InfoGraphics Lab, and her marriage to photographer Gary Tepfer.



Standing stones, seen from the east. Late Bronze Age. Aral Tolgoi, Bayan Ölgii Aimag, Mongolia. Photo: Gary Tepfer



Jim Meacham's constant companion in the field: an ultra-rugged TDS Pocket PC, which is built to withstand harsh environments like the steppes.

Early on, Jacobson-Tepfer began recording the location of her Altai discoveries in the field, using an inexpensive hand-held Garmin mapping device. But how to transform these GPS points into actual maps? Fortunately, Jim Meacham and his team of cartographers in the UO Department of Geography had the answers, and an inspired collaboration was born. Meacham, who had been working with Jacobson-Tepfer since 1993, gradually enlisted the aid of his cohorts in the InfoGraphics Lab (Assistant Director Ken Kato, Interactive Cartography Project Manager Erik Steiner, GIS/Remote Sensing Specialist Nick Kohler, and Research Cartographer Alethea Steingisser), and they soon became an integral part of Jacobson-Tepfer's project, working closely with her to create the *Cultural Atlas of the Ancient Mongolian Altai*.

Each member of the InfoGraphics team has unique talents to contribute. In addition to his cartography chops, Meacham's love of backpacking and high country, as well as his experience as a surveyor for the Bureau of Land Management and the Oregon Parks and Recreation Department, make him ideally suited for assisting with research in the field. Kohler holds up the technical end with his extensive knowledge of acquiring and processing remote sensing data, Steiner's web design and scripting skills and Kato's expertise in managing the geodatabase and dynamic web server functions are invaluable in creating the interactive *Atlas* website, and Steingisser's painstaking attention to fleshing out cartographic details help bring Jacobson-Tepfer's data to life.

Another essential member of the *Cultural Atlas* project is her husband Gary Tepfer. “Gary is a really good mountain man,” she says. “Without him, I might not have had the confidence to tackle this

Altai Inventory, continued...

terrain.” Tepfer’s decades of experience in both the craft of photography and survival in the wild make him ideally suited to meet the demands of this project. In addition to being published in the series of scholarly books produced by his wife and her fellow researchers over the years, Tepfer’s striking photographs of the stark landscape of the steppes and its people have also been exhibited internationally, as well as at the UO and in local art galleries such as the White Lotus in Eugene.

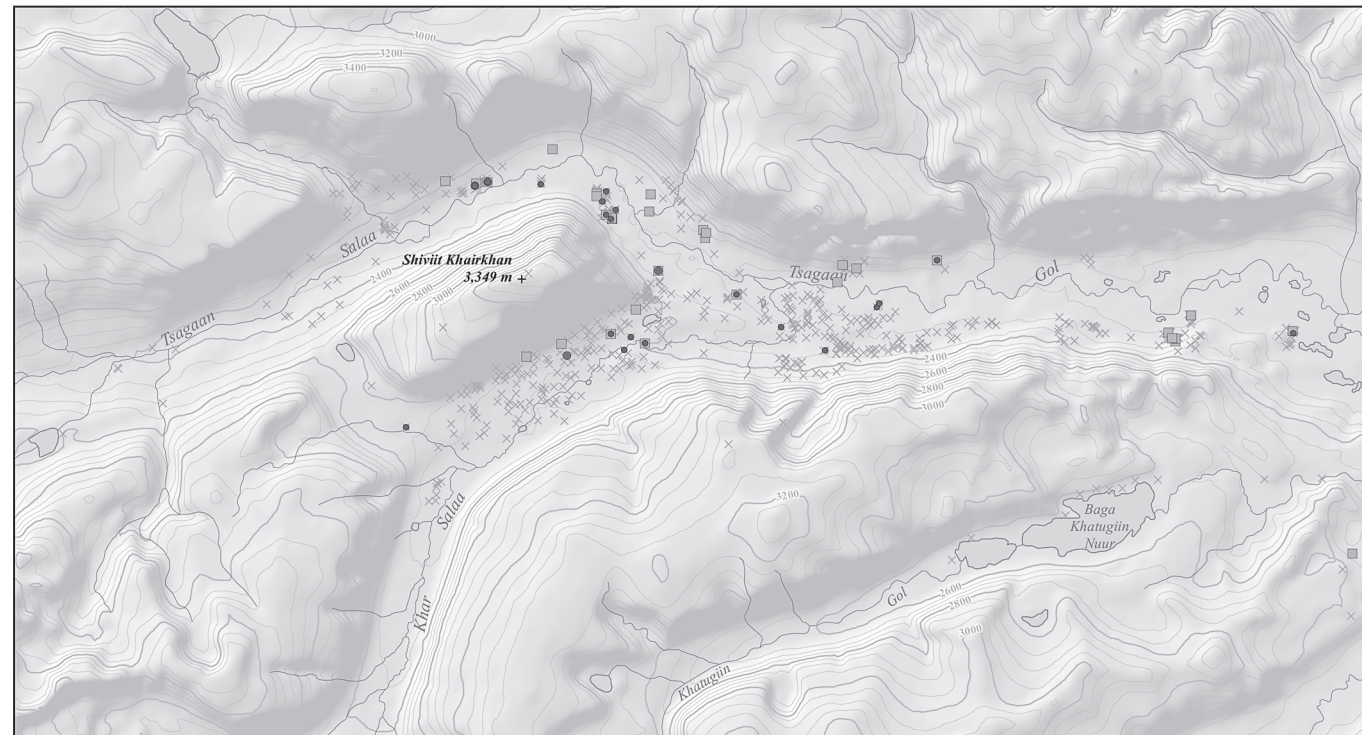
Of the InfoGraphics Lab group, Meacham is the only one who has accompanied Jacobson-Tepfer and the team of American, Russian, and Mongolian researchers on their expeditions. He first traveled with them in 1997 to assist in gathering data. Since then he has joined the expedition twice, in the summers of 2004 and 2006, using a rugged TDS Pocket PC equipped with customized ArcPad GIS software.

“It was great working with Esther and Gary to tell their story with maps,” Meacham says. “Cartographers rarely have an opportunity to be in the field, and it’s wonderful to be in touch with the material you’re mapping and to be with the process from beginning to end.” He praises Jacobson-Tepfer’s prodigious organizational and troubleshooting skills—essential in surmounting the hurdles facing travelers in Mongolia—and is appreciative of her instinct for geography. “Esther thinks about things

geographically,” he says, and the two are in sync when mapping the points and attributes of the study area. The screens on their TDS units are large enough to show map details clearly. To record data about any given locale, they need only click on a point on the map to bring up a menu of more than 100 attributes describing the site, including location and elevation, monument types and numbers, chronology, petroglyph imagery content, and topographic features.

“The Mongolian Altai Inventory,” as the NEH grant project is called, is slated to be completed in 2009. Anyone familiar with the InfoGraphics team’s *Atlas of Oregon*, which won top awards in international competitions conducted by the American Congress on Surveying and Mapping, knows that their work is not only functional, but exquisitely beautiful. The printed and interactive web forms of the *Cultural Atlas of the Mongolian Altai* are expected to be a spectacular addition to their growing body of work.

Their cultural atlas of the Altai is likely to be well received and widely consulted. But over the past year Jacobson-Tepfer has been quietly working on a less heralded personal project: an album documenting her research. A testament to the deep friendship she has formed with the people of the Altai over the years, it is intended as gift for a Kazakh school director who is teaching the children of local herders about their own history.



Standing Stones
Tsagaan Gol
Bayan Ölgii Aimag, Mongolia

■ Massive Standing Stones
● Deer Stones
● Small Stele
× Study Points



0 1 2 km
UTM Zone 45
50 meter contours

Altai Mapping Project
E. Jacobson / J. Meacham
© 2006 University of Oregon

InfoGraphics Lab map showing the location, type, and concentration of standing stone monuments in Tsagaan Gol, Bayan Ölgii Aimag, Mongolia.

More about the *Mongolian Altai Inventory Project* (<http://www.uoregon.edu/~altay/>)



Top left: Esther Jacobson-Tepfer points out features of a petroglyph to Bayandy, the team’s driver, friend, and rich source of local lore. Photo: Jim Meacham

Below: Jim Meacham (left) and Esther Jacobson-Tepfer (right) describe their work in the area to a local herder and friend, Mantai (center). Photo: Gary Tepfer.



Project Staff

Esther Jacobson-Tepfer, Kerns Professor of Asian Art History, University of Oregon

James Meacham, InfoGraphics Lab Director, UO Department of Geography

Gary Tepfer, photographer

Ken Kato, InfoGraphics Lab Assistant Director

Alethea Steingisser, Research Cartographer

Erik Steiner, InfoGraphics Lab interactive cartographic designer and developer

Nicolas Kohler, GIS/Remote Sensing Specialist, UO Department of Geography

Project Consultants

Altangerel Enkhbat, Director General for Sustainable Development and Strategic Planning in the Ministry of Nature and the Environment, Mongolia

Ayatkhan Atai, Bayan Ölgii Regional Director

Damdinsurenjin Tseveendorg, Director, Institute of Archaeology, Mongolian Academy of Sciences

Orna Tustem, Doctoral Student, Department of Art, UC Berkeley

Jon Jablonski, David and Nancy Petrone MAP/GIS Librarian, University of Oregon

Kirstin Hierholzer, Assistant Director for the Center for Educational Technologies, UO Libraries

Other projects by the Department of Geography’s InfoGraphics Lab:

1. *Atlas of Oregon*: <http://geography.uoregon.edu/infographics/projects/atlasPrint.htm>
2. *Nolli Map of Rome*: <http://nolli.uoregon.edu/>
3. *Atlas of Yellowstone*: <http://geography.uoregon.edu/infographics/projects/yellowstone.htm>

Seeing With New Eyes...

John Donovan's innovations advance ONAMI's objectives for integrative science in research and education

Joyce Winslow
jwins@uoregon.edu

"Talk to John Donovan." ... "You should really talk to John Donovan." ... "Have you talked to John Donovan?"

Ask any number of faculty, scientists, and researchers on campus about the labs in the UO's new underground Oregon Nanoscience and Microtechnologies Institute (ONAMI) research center, and you're likely to hear the name John Donovan. These pros aren't passing the buck, they're merely giving the nod to someone whose expertise they obviously admire.

Dave Johnson, UO chemistry professor, nanotechnology trailblazer, and ONAMI codirector, credits Donovan with being a big influence on the new collaborative, interdisciplinary direction in scientific research at the UO. "John changed the way we do research," he says. "We're developing new ways to do things, and as a result we get better data."

So who *is* John Donovan?

Donovan is the engaging, energetic director of the CAMCOR (Center for Advanced Materials Characterization in Oregon) Microanalytical Facility at the UO, home of some of the most sensitive scientific instruments in the world. He is an inspiration for other CAMCOR lab managers, and a principal designer of the interior layout for the new ONAMI research center in the Lokey Laboratories building on campus. The center, which will open near the end of this year, houses highly advanced equipment for research in chemistry, nanoscience, materials science, bioscience, geology, and optics.

Having all this equipment under one roof, available to researchers from a variety of scientific disciplines in both academia and industry, is intended to foster collaboration and spur scientific advances. Sharing this phenomenally expensive equipment is not only practical in that it cuts costs, but also productive, because it enables more—and more innovative—research. In addition, CAMCOR has an educational component, providing workshops and hands-on training in the use of the instruments.

The potential for sharing the latest sophisticated equipment with researchers throughout the Northwest and sparking a cross-pollination in scientific methodologies was a large factor in luring Donovan here from the University of California at Berkeley, where he was lab manager for its geology department.

A review of Donovan's history reveals that he is a true Renaissance man. Early in his career, he served a mechanical technician apprenticeship in the accelerator division of the renowned Lawrence Berkeley National Laboratory (LBNL) at UC Berkeley, gaining



Michael Anderson (foreground) and John Donovan prepare to analyze a sample of sediment from 100 meters below the ocean floor using the Environmental Scanning Electron Microscope. The instrument is fitted with a custom-made cathode luminescence detector designed by Donovan and Kris Johnson of the UO machine shop, and is being used in a collaborative project with Pacific Northwest National Laboratories to measure the effects of global warming.



During a tour of the new ONAMI center in September, John Donovan (center) points out some of its features to (left to right) UO geology professor Qusheng Jin; Jim Hutchison, chemistry professor and director of the Materials Science Institute Hutchison Lab; and Dean Wendy Larson and Associate Dean Dietrich Belitz of the College of Arts and Sciences.

invaluable experience in machining, engineering, and instrument maintenance, design, and troubleshooting. "I learned from the best engineers, technicians, and scientists in the field," he says. Eventually, he went on to become Superintendent of Shops in the Department of Earth and Planetary Science at UC Berkeley and eventually became an expert in both Electron Microprobe and Scanning Electron Microscopy.

At UC Berkeley, Donovan worked with renowned scientists, including geologists Ian Carmichael (on Mexican volcanics), Garniss Curtis (on K-Ar and Ar-Ar dating techniques), and Walter Alvarez (on Cretaceous-Tertiary impact samples), and astrophysicist Richard Muller (on chemistry and dating of lunar glass spherules from Apollo 11). A geology buff himself, he became more than casually involved in their research projects and made some contributions of his own, including publishing several papers on elastic scattering of electrons with physicist Andrew Westphal. On one of his Franciscan mineral species surveys in northern California he managed to relocate the long-lost type locality for the mineral crossite, originally discovered by Charles Palache in 1894.

Donovan's expertise in all aspects of working with and maintaining sophisticated lab machinery, plus his understanding of science and the needs of researchers, uniquely qualify him for his current job at the UO. His broad background makes him "multilingual" in the lab environment, able to communicate as easily with engineers and machinists as with academics and scientific researchers.

Because of this exceptional skill set, Donovan is constantly designing improvements. He has developed not only important practical hardware modifications, but also an entire line of analysis and imaging software for electron microprobes (www.probesoftware.com). As part of his efforts to improve analytical instrument performance, Donovan continues to re-engineer mechanical and electronic components for obtaining the best possible scientific measurements, including the development of software algorithms and instrumental techniques. His creativity and ability to improvise—"doing a lot with a little," as ONAMI director Skip Rung puts it—has been a big factor in putting ONAMI on the national stage despite its modest budget.

Seeing with New Eyes, continued...

One of Donovan's widely used adaptations in the Microanalytical Facility is remote access video for monitoring, observing—and even performing—microanalysis via the Internet. This feature has proved so useful that it is becoming standard on all CAMCOR's instruments. Each instrument in the lab is equipped with both virtual network computer connections and a high resolution video camera that can pan, tilt, and zoom, enabling a precise view of the procedure being performed. Wherever they are, researchers outside the labs can keep tabs on the progress of a project or help troubleshoot a problem by connecting to the instrument display from their laptop or any available computer. Once connected, a remote user can see exactly what an operator sitting in front of the instrument sees, in fine detail. It is also possible to control the camera movements and the instrument settings remotely, using the camera as a shared remote pointing device to focus on a particular region of interest.

Since January, ONAMI director Skip Rung has utilized this interactive capability to dramatic effect in presentations to science students and science professionals alike. The inspiration for his first demo was the desire to spark the imagination of bright young science students who were finalists in a statewide robotics competition at the Liberty High School gymnasium in Hillsboro. "Rather than simply giving a talk about nanotechnology," Rung says, "I thought it would be more fun to *do* nanotechnology!" So he teamed up with Kurt Langworthy in the Microanalytical Facility for a dramatic illustration of nanoscale using electron beam lithography. Using his laptop, a projector, and an audio connection with Langworthy via telephone, Rung accessed the remote video on the scanning electron microscope at the UO and asked Langworthy to show ever-diminishing renditions of concentric O's in the ONAMI logo. Langworthy, using a one-millimeter piece of silicon taped to a penny, etched the logo pattern with the e-beam and then reduced it in stages to one billionth of a meter while the students looked on in wonder.

In June, Rung reprised his performance at the Workshop on Nanoinformatics Strategies in Arlington, Virginia. The conference was an invitation-only gathering of leading scientists and engineers from major U.S. universities and research laboratories in government and industry. With Donovan as his partner operating the electron microprobe at the UO and explaining the samples being analyzed, Rung—again using his laptop, a projector, and a telephone audio connection—treated the select audience to a review of some of UO chemistry professor Dave Johnson's research for developing new nano compounds with ultra low thermal conductivity.

"Being invited to give a demonstration at this conference was a nice honor for us," Rung says. "The demonstration was very well received. Everyone

was impressed with the creativity, economy, and efficiency of our remote video setup."

Remote video capability is a boon to scientists like Dr. Lev Zakharov, who is director of the CAMCOR X-Ray facility and divides his time between the OSU and UO campuses. "One of the online video cameras inside the ONAMI project has been installed in the X-ray lab at OSU to provide support for the joint UO and OSU X-ray facility," he explains. "It is a very useful channel which allows me to check online the status of the diffractometer at OSU. It is especially important because not all parameters of the system can be checked through a computer connected to the diffractometer."

Zakharov sees tremendous potential for even more collaboration between OSU and the UO when the streaming video connection becomes two-way. "The installed video camera is just the first step in improving communication between the UO and OSU, and we have to keep moving in this direction," he says.

The potential role of interactive remote video in instruction and training is also apparent. Steve Gollidge, Director of CAMCOR's Surface Analytical Facility, has already received some requests from professors at other Oregon universities to give remote video demonstrations for classroom use.

All the newer CAMCOR instruments are connected to NWNanoNet, the network for ONAMI researchers and industry partners, making live images available to everyone in the ONAMI community. From the beginning, ONAMI's model has been all about sharing resources, not only to cut costs, but also to foster innovation, collaboration, and exchanges across scientific disciplines. ONAMI's rich mix of educational, research, governmental, and industry affiliates provides great potential for scientific advances.

When the companion building to the underground ONAMI facility at the UO is completed in 2012, the full collaborative vision of the new Integrative Science Complex (ISC) and its academic mission will start to take shape. This multistory structure will house classrooms and instrument labs used in the UO's cognitive neuroscience programs and physical, biological, and computer science. These, together with ONAMI's shared, networked facilities will work together to contribute to faculty research, provide valuable internships for students, and offer a rich resource for classroom demonstrations.

Donovan is one of the primary cheerleaders for the innovative, collaborative integrative science model. "Science is all about seeing with new eyes," he says, and that's clearly the motto he lives by. His creative contributions to the CAMCOR labs give us a glimpse of the kind of fresh vision that will guide ONAMI researchers in the decades to come.

MORE ABOUT ONAMI

1. Oregon Nanoscience & Microtechnologies Institute (ONAMI) partners:

Research Affiliates

University of Oregon
Oregon State University
Portland State University
Pacific Northwest National Laboratory

Educational Affiliates

Eastern Oregon University
Oregon Health and Science University
Oregon Institute of Technology
Oregon Museum of Science and Industry
Southern Oregon University
Western Oregon University

Government and Industry Affiliates

ONAMI also works with numerous federal agencies and regional high-tech firms

2. Nanotechnology events, news, K-12 programs, shared user facilities, NWNanoNet, researchers, and industry partners:
<http://www.onami.us/>
3. "Atomic Masonry," article in Autumn 2007 issue of *Oregon Quarterly* about UO chemistry professor Jim Hutchison's efforts to promote "green" practices in nanotechnology: http://www.oregonquarterly.com/assets/pdf/07au_nano.pdf



Above: John Donovan (foreground) explains features of one of the soundproof support equipment galleries outside the CAMCOR labs in the ONAMI center. In addition to NWNanoNet wiring, these galleries house generators and other noisemakers that must be separated from the extremely sensitive lab instruments. The galleries also shield the labs from interference by electromagnetic fields (EMFs).

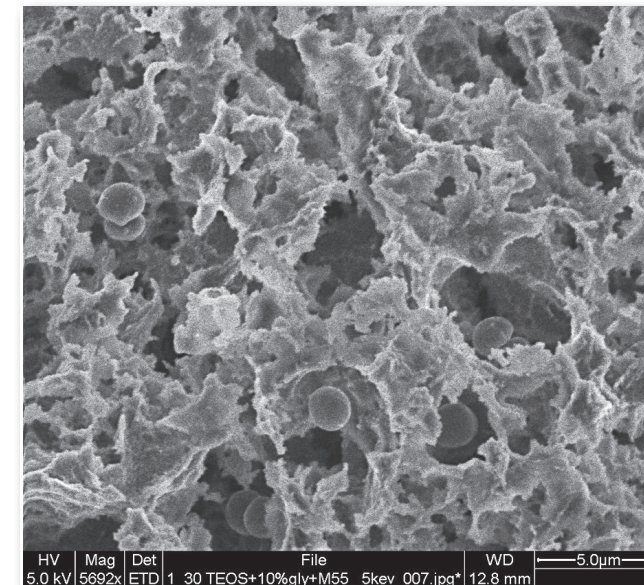


Image generated by the Environmental Scanning Electron Microscope showing cyanobacteria encapsulated in a silica gel matrix. This sample is from a collaborative research project on hydrogen producing bacteria in aerogels conducted by UO chemist Cathy Page and OSU scientists David Dickson and Roger Ely.

MORE ABOUT CAMCOR

Information about CAMCOR facilities, training, and contacts for each of the labs:

<http://materials.science.uoregon.edu/Outreach/CAMCOR/About.html>

Linguistics Project Takes Adventurous Grad Student to Bhutan

An endangered language is being documented, thanks to new technologies and the dedication of a few UO researchers and native speakers

Vickie Nelson
vmn@uoregon.edu

Linguistic graduate student Gwen Lowes was looking for a language to work on. Professor Spike Gildea was looking for a native speaker for his field methods class. Bhutan native Pema Chhophyel was looking for a job and a way to make sure his language didn't disappear. When the three came together in Gildea's field methods class in September 2005, good things began to happen for Kurtöp, a language spoken by fewer than 10,000 people in northeastern Bhutan on the southeast slope of the Himalayan Mountains.

When Bhutanese children go to school, they learn Dzongkha, the national language, and English. Dzongkha is a written language spoken by about 130,000 people, most of them in Bhutan. Kurtöp, however, is what linguists call an almost completely undocumented language. Before the field methods class began its work, Kurtöp had no alphabet, no dictionary, no written grammar, no texts at all. Without texts and an alphabet to produce more texts, a language is in danger of disappearing without leaving a record. If it disappears, so will the stories, myths, songs, poetry, and history of its speakers—the entire culture and worldview of a people.

Gildea hired Chhophyel as a language consultant and the class got to work. With the support of the Department of Linguistics, the Center for Asian and Pacific Studies, the Associate Dean of Humanities, and the Vice Provost's Office, Chhophyel traveled to Bhutan over winter break to collect samples of spoken Kurtöp, carrying with him videos of the students in the class speaking in Kurtöp. The class developed a system for writing Kurtöp using the same Roman letters as the English alphabet and produced a number of papers, including Lowes' master's thesis, "Kurtöp Phonetics and Phonology." The Kurtöp Documentation Project was underway.

Because Gildea is an enthusiastic user of technology for field linguistics, students in his field methods classes learn to use the latest digital recorders and specialized linguistic software such as Praat and Transcriber that allow field linguists to begin acoustical and linguistic analysis while still in the field. Not all



Gwen Lowes with her host family in Tabi, Bhutan (Thrinlay, on left, and his wife Peldon.)

linguists use—or approve of using—this technology, however. Gildea says he thinks the seismic shift in linguistics is still several years away.

How would a linguist work without the technology?

Gildea gives a brief history of field linguistics over the past one hundred years, beginning with a list of the tools a linguist had in the early 20th century. It's a short list containing only three items: ear, paper, pencil. Linguists working in those days would have needed to ask subjects to speak slowly and repeat phrases several times. What they would get would be disconnected sentences—"Utterly unnatural," says Gildea.

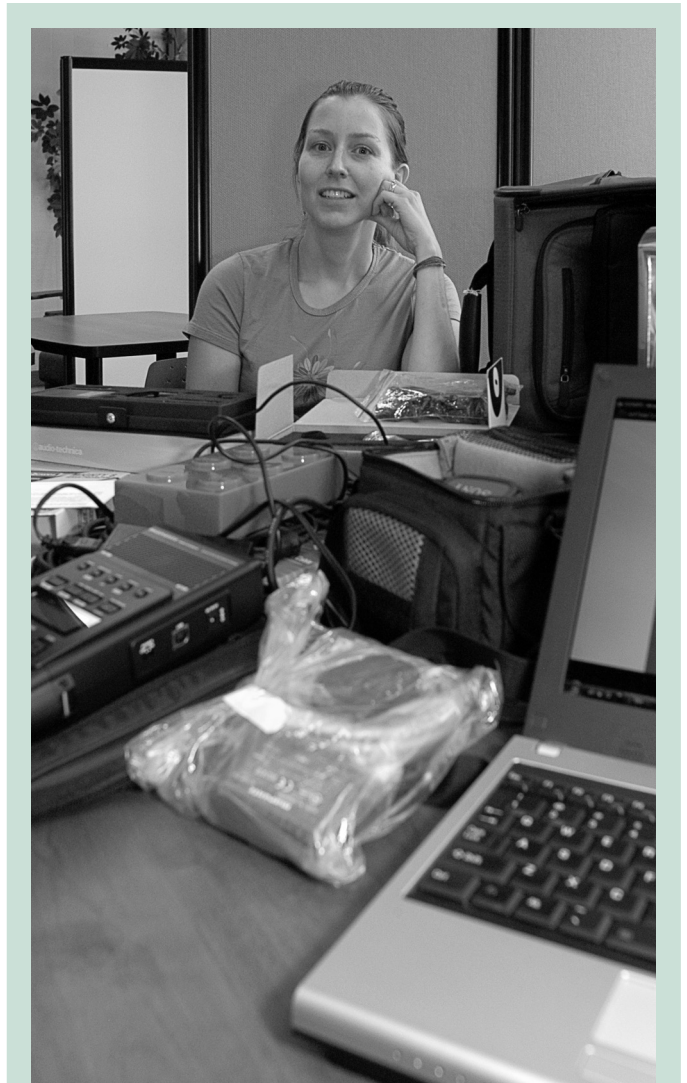
The 40s and 50s brought in reel-to-reel tape recorders and the ability to collect not just words, phrases, and isolated sentences, but people's voices engaged in real conversations. Despite the obstacles (bulky equipment, deteriorating tapes, and unreliable recorders), linguists now had not just one person's transcription, but a recording of the data itself. Over the decades, microphones improved and tape recorders got smaller. By the mid-90s, lightweight laptops and DAT recorders gave linguists lighter, more reliable tools to take with them.

Fast-forward to the present day. Gwen Lowes, now the primary investigator and director for the Kurtöp Documentation Project (under the supervision of her advisor Scott Delancey, an expert in Tibeto-Burman languages), describes herself as both excited and frantic as she prepares to go into the field for nearly two years. She lugs a large backpack full of equipment to campus to demonstrate the technology she will be taking with her when she travels to Dungkar, a collection of villages that includes Tabi, the cluster of homes where she will live. The village recently got electricity, but still lacks phone service and running water.

She opens her pack and begins taking out a variety of cords, headphones, microphones, and disks, along with a DVD burner, a WAV Marantz PMD 660 recorder, a tiny video recorder, an extra laptop battery, a tripod, and a surge protector. A new laptop, a Toshiba Satellite with Vista operating system, comes out of its own separate pack.

She casually mentions that depending on the condition of the road, she may have to hike 40 kilometers with all this equipment from the village where "the good road ends," to Tabi, where she will be doing her field work. She appears cheerful at the prospect.

Lowes has been to Bhutan twice already. In order to travel there she needed the permission of the Royal Government of Bhutan, and to work on the Kurtöp language she needed the blessing of the Dzongkha Development Commission. The commission will be an active collaborator in the Kurtöp project, making suggestions and offering advice.



Gwen Lowes displays some of the equipment in the hefty field research pack she is taking with her to Bhutan.

While in Tabi, Lowes will live with a family whose oldest son is already working as her assistant. She will be immersed in Kurtöp as she engages in the daily life of her host family and the other villagers, who are, she reports, thrilled to have outsiders interested in Kurtöp.

She will begin documenting Kurtöp by using her WAV digital recorder to collect language samples, including stories, songs, and natural conversations, which she plans to capture by setting up her recorder on the tripod among a group of Kurtöp speakers and leaving them alone. She will then transfer the data to her laptop and her assistant will begin the process of converting speech into writing using Transcriber, a free program with a user-friendly GUI (graphical user interface) that lets the linguist break a recording up into what Lowes calls "analyzable chunks." The linguist sees a visual representation of the sound as he or she listens to a language segment.

Linguistics Research, continued...

Once she is comfortable with the transcription, she will put it into Toolbox, a data management and analysis tool for field linguists, and begin a major part of her Ph.D. work, producing a grammar of Kurtöp. In addition to the grammar, she and a collaborator, Karma Tshering, will develop a Kurtöp/English/Dzongkha dictionary. The dictionary will have around 10,000 words and include such extras as pictures, etymologies, sound files, synonyms and antonyms.

She will also use a linguistic program called Élan, which combines video with sound, adding gesture and facial expression to the context of the language sample. She has discovered that Élan's audio unfortunately doesn't function under Vista, an incompatibility she hopes she can troubleshoot from the field.

As the dictionary and grammar of Kurtöp come together, Lowes will burn DVDs and send them to her advisor. She can send email from the capital of Bhutan, Thimphu, about a three days' journey away, but will have to keep her messages short because the dialup connection is unreliable. She recalls trying—and failing—to send corrections to her master's thesis as an attachment when she was in Bhutan a couple of years ago.

She'll also send DVDs of her work to the Hans Rausing Endangered Languages Documentation Project (HRELDLP) in London, where they will be archived. HRELDLP, which is supporting her work with a grant, is one of the driving forces in the language documentation movement. According to the HRELDLP website, half of the approximately 6500 languages in the world today are in danger of disappearing within the next century, "a social, cultural, and scientific disaster." HRELDLP credits the maturing of technology with the growth of language documentation and states, "Digital archives allow possibilities never before imagined."

When Gwen Lowes and the Kurtöp documentation team have completed their work, Kurtöp will be a documented language complete with dictionary, grammar, and texts. Linguists, researchers, and students all over the world will be able to listen to Kurtöp and watch people speaking it. The language will no longer be in danger of disappearing without a trace.

Read more about the Kurtöp Documentation Project at <http://www.uoregon.edu/~glow/Kurtoep-Summary.htm> and about the Hans Rausing Endangered Languages Documentation Project at <http://www.hrelp.org/>.

it@uo

UO Tech Ed Projects Win NWACC Proof of Concept Grant Awards

Dr. Lynn Anderson-Inman and Massimo Lollini were recently awarded grants by the Northwest Academic Computing Consortium (NWACC) to help fund their explorations into academic applications of web-based technologies.

The Salamander Project

Dr. Lynne Anderson-Inman, Director of the Center for Advanced Technology in Education in the College of Education, is collaborating with Research Associate Jonathan Richter to create a comprehensive database of Second Life 3D learning objects and environments for teaching and learning. In Phase One they developed a "landmark nominations tool" within Second Life to enable educators to identify 3D learning objects and environments with educational potential, and explain their choices. Phase Two focuses on organizing the nominated sites by discipline and type of learner engagement, with the best being integrated into the MERLOT database of online learning materials for free distribution to teachers and students. For more information, please check out the the Salamander wiki at <http://www.eduisland.net/salamanderwiki>.

Petrarch and the Worlds of Poetry: A Web-based Resource

Massimo Lollini, professor of Italian in the Department of Romance Languages, received his NWACC grant for a project that will create a digital archive and communications portal for *Canzoniere*, Petrarch's famous book of poems. Lollini, with technical support from Yamada Language Center Director Jeff Magoto, will create an interactive international resource for students and scholars that will provide expanded possibilities for collaboration and discussion. Lollini is involving his students in every stage of the project, from finding and digitizing texts to concept mapping and text commentary.

Top 10 Library Resources

The mission of the University of Oregon Libraries is to enrich the student learning experience, encourage exploration and research at all levels, and contribute to advancements in access to scholarly resources. Here's a list of the top ten library resources that can help you achieve your academic goals:

Your Library Subject Specialist

The subject specialist librarian works with departmental faculty, staff, and students to understand and support the research and information needs of the academic unit, support instruction, and provide referrals to the many services offered by the UO Libraries. For details, see <http://libweb.uoregon.edu/general/services/subspecpub.html>.

Center for Educational Technologies

CET (<http://libweb.uoregon.edu/cet/>) is a one-stop shop for UO faculty who want to use technology more effectively in their teaching. CET provides assistance and referrals for educational technology training, support, and production.

Scholars' Bank

Scholars' Bank (<https://scholarsbank.uoregon.edu/dspace/>) is an open-access archive for UO research, publications, and supporting materials in digital form. It is an ideal medium for posting publications, reports, research results, poster presentations, and other academic and scholarly materials. Items can be easily searched for quick access.

Media Services

Media Services (http://libweb.uoregon.edu/med_svc/) provides classroom technology and educational video support for teaching and learning, research, public service, and outreach. Services include on-call media support for UO classrooms; technology training for instructors; design, installation, and maintenance of state-of-the-art hardware, software, and presentation systems for more than 100 campus classrooms; videoconferencing and distance education facilities; and video production and distribution systems.

Blackboard

About three-quarters of all UO students are now enrolled in at least one class that has a Blackboard component. Most faculty use it for online posting of syllabi, announcements, handouts, readings, discussions, assignments, and grades. The latest information on Blackboard is available at <http://libweb.uoregon.edu/tools/blogs/cet/>.

Electronic Classrooms, Learning Commons

Knight Library houses several electronic classrooms (<http://libweb.uoregon.edu/instruct/>

[classrooms/calindex.html](http://libweb.uoregon.edu/classrooms/calindex.html)) where faculty can teach in state-of-the-art technology and media environments. A full-service Learning Commons in Knight Library ensures that students have access to the hardware, software, and physical spaces necessary to conduct collaborative class projects as well as develop professional-quality class presentations.

Document Delivery Services

UO faculty members can now have journal articles scanned and delivered electronically to their desktops (<http://libweb.uoregon.edu/borrowing/delivery.html>). Any article in a print-only journal owned by the UO is available in digitized form through this service. Faculty members can also have books from the library's general collections delivered to the offices of their campus departments.

Course Reserves

The course reserves program (<http://libweb.uoregon.edu/reserves/>) provides controlled, ready access to materials required for UO courses. The electronic reserves program (E-reserves) allows course materials to be placed on the web so that students can use them at any time. Access to these materials is restricted to current UO students, faculty, and staff. The library has also implemented a textbook reserves program designed to offer students some alternatives to high textbook prices.

Orbis Cascade Alliance

The Orbis Cascade Alliance, a consortium of 34 Pacific Northwest university and college libraries, is proof of the value of collaboration and resource sharing among academic libraries. The Orbis Cascade Alliance also facilitates sharing of electronic resources through collaborative licensing agreements, maintains the Northwest Digital Archives database, and arranges for borrowing privileges from the Center for Research Libraries.

Digital Collections, Databases

The library maintains a large and growing collection of digital images and documents (<http://boundless.uoregon.edu/digcol/>) and has licensed the use of major image databases such as ARTStor (<http://www.artstor.org/info/>), which offers more than 500,000 digitized images for research and instructional use. Many of the materials housed in the library's Special Collections and University Archives now have comprehensive online finding aids, thanks to the library's participation in the development of the Northwest Digital Archives database (<http://nwda.wsulibs.wsu.edu/about.html>).

Additional Services

Newly launched services and resources are announced regularly on the Library News web pages. An RSS feed is available at <http://libweb.uoregon.edu/news/rssinfo.html>.

Information Services Guide

UO Website

<http://www.uoregon.edu/>

IT Website

<http://it.uoregon.edu/>

Campus Modem Number

(541) 225-2200

Microcomputer Services

(151 McKenzie Hall)

<http://micro.uoregon.edu/>

(541) 346-4412

microhelp@lists.uoregon.edu

- Mac OS & Windows help
- Help with damaged disks, files
- Help with Duck ID
- Help with Internet connections, file transfers
- Antivirus & antispyware

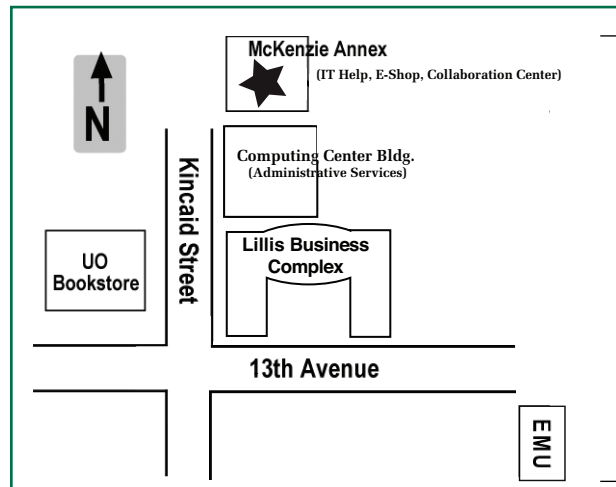
Information Services

Collaboration Center

(175 McKenzie Hall)

(541) 346-4406

White board and other interactive technologies, computing-related books, CDs, and training videos



Help Desk Hours (151 McKenzie)

Mon - Fri 9:00 A.M. - 5:00 P.M.

McKenzie Building Hours

Mon - Thu 7:30 A.M. - 11:30 P.M.

Friday 7:30 A.M. - 7:30 P.M.

Saturday 9 A.M. - 9:30 P.M.

Sunday 9 A.M. - 9:30 P.M.

Computing Center Building Hours

Mon - Fri 8:00 A.M. - 5:00 P.M.

Note: These are *building* access hours; hours for individual facilities may vary.

Electronics Shop

(151 McKenzie Hall)

http://is.uoregon.edu/e_shop/

(541) 346-3548

hardwarehelp@uoregon.edu

Computer hardware repair, upgrades

Network Services

<http://ns.uoregon.edu/>

(541) 346-4395

nethelp@ns.uoregon.edu

Central data communication and network services

Telecommunications Services

<http://telcom.uoregon.edu/>

(541) 346-3198

Local and long distance phone service for UO campus

Administrative Services

<http://ccadmin.uoregon.edu/>

(541) 346-1725

Programming support for campus administrative computing



UNIVERSITY OF OREGON

OFFICE OF THE VP FOR INFORMATION SERVICES AND CIO

1212 University of Oregon

Eugene, OR 97403-1212