When the month of May arrives, many at the University see the end of the semester, graduation, recognition of achievement, and thoughts about summer. Others see Commencement as an opportunity to look back with pride and ahead with anticipation and confidence. This thought holds true for our annual administrative cycle of evaluation as FY12 draws to a close and planning for FY13 takes place.

As we closed out the month, President Huddleston held a Cabinet retreat where we celebrated getting through the fiscal year intact and identified over 100 big and small things that we could do to increase revenue and cut costs. Of course, all of these things cannot be achieved, and we need to prioritize those efforts that will have the largest impact. The College Deans joined the Cabinet and we enjoyed the opportunity to plan together, fully acknowledging that we are “better together.”

In addition to the privilege of sitting on the UNH and UNH-M commencement platforms, my (Cont. on p. 7)

SVPR’s Corner

UNH Research Leveraging Initiative Funding Opens New Doors for Collaboration

As mentioned in last month’s SVPR’s Corner, teams of the first UNH Research Leveraging Initiative grants recently reported on their interdisciplinary research projects and progress in seeking external funding. This article describes the projects and some of their outcomes so far.

The UNH Research Leveraging Initiative provides start-up funding for promising research projects that address problems of critical importance and contribute to the intellectual vitality of the institution. The focus of this initiative is to position interdisciplinary groups of faculty and other key research personnel to be competitive for major external grants that will advance new ideas and paradigms.

The eight projects are: visionary; leverage existing strengths and infrastructure; involve community, business, and/or academic partners; and employ teams comprised of UNH tenure-track faculty, research faculty, graduate students, undergraduate students and staff.

The teams have members from CEPS, CHHS, COLA, COLSA, WSBE, the Graduate School, the Carsey Institute, the Institute on Disability, the NH Institute on Health Policy & Practice, Research Computing and Instrumentation, the University Office of Sustainability, and the Institute for the Study of Earth, Oceans and Space. (Click here for info about the project teams.)

When the eight teams met recently to share their progress with the New Ventures Advisory Committee, members of the Office of the Provost (including Jan Nisbet, Senior Vice Provost for Research) and each other, they reported that as of April 1, 2012, 27 proposals had been submitted to 18 different federal agencies and other sponsors’ programs and 6 awards had been made. Among the teams, 19 more proposals are planned to be submitted before the end of 2012. (Cont. on p. 2)
Research Leveraging Initiative (cont. from p.1)

Highlights of the team presentations about the projects and their outcomes are found in the table below. More information about the Research Leveraging Initiative can be found on its [UNH 2020 webpage](#).

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Progress and Lessons Learned</th>
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| **Biofuel Generation Using Clostridial Bacteria Modified with Zeolite Nanostructures** | • To fabricate zeolite nanoparticles that facilitate robust bacterial attachment  
• To identify potent Clostridial bacteria for use in microbial CO\textsubscript{2} reduction  

Progress:  
• Biocompatible zeolites created  
• Bacterial attachment demonstrated  
• Cell viability confirmed  
• Developed collaboration with Dr. Charles Turick, Savannah River National Laboratory (a U.S. Dept. of Energy laboratory)  

Lessons Learned:  
• Proposed ideas are innovative and technically feasible  
• The research is not only fundamental, it could lead to technological breakthroughs and device fabrication |
| **Center for Excellence in Geosciences Education (CEGE)** | • Provide a structure for educational research of geosciences learning -- a focused means of implementation and dissemination for geosciences education at UNH, including:  
K-12 curriculum resources; teacher professional development; and graduate, undergraduate, and informal education  

Progress:  
• CEGE has been recognized as "an organization within UNH dedicated to outreach and education" by National Science Foundation (NSF) reviewers  
• Web site created: [UNH CEGE](#)  

Lessons Learned:  
• Major challenges include:  
  - Changing personnel  
  - Balancing short-term objectives with long-term goals |
| **Center for Health Analytics at the University of New Hampshire (CHA)** | • Create a platform for conducting sponsored research and graduate education, designed to:  
  - Support practice-based and academic research projects with accurate and reliable data analysis;  
  - Foster interdisciplinary collaboration within and outside of UNH; and  
  - Increase graduate and undergraduate learning and research opportunities.  

Progress:  
• CHA demonstrates the utility of the data, both in developing data analysis skills and advancing knowledge about health issues:  
  - Promotes existing resources on campus  
  - Linking people to resources (e.g., RCI)  
  - Linking people to projects (e.g., Graduate School)  
  - Provides a forum to think about novel ways to conduct research on data  
  - Claims-based projects that are new approaches  
  - Requires the partnership on topic area expertise, technical expertise, analytic expertise  

Lessons Learned:  
• Need to be cautious in approach  
• Timing and cycles are important  
  - Grant cycles  
  - Graduate student planning and recruiting cycles  
• Data acquisition can be very time-consuming.  
• There is a lot of great talent here!  
• There is a lot of work to do! |
| **Center for Integrative Analyses of the Neural Basis of Behavior** | • Use a multidisciplinary, multi-institutional approach to study animal behavior:  
  - Psychology (UNH): Neurological basis of complex behaviors in vertebrate species  
  - Electrical and Computer Engineering (UNH): Engineering support to develop instrumentation; neural signal processing  
  - Biological Sciences (UNH): Neural basis of behavior and tracking movements of marine invertebrates  
  - Psychological and Brain Sciences (Dartmouth College): Technical assistance using tetrodes to record neural activity in awake, behaving animals  

Progress:  
• Currently collecting data  
• Some data marred by artifacts produced from commutator and apparatus response equipment  

Lessons Learned:  
• Collaborative advantages:  
  - Immediate: Electrode construction, signal processing, video tracking expertise, current stimulation electrode development  
  - Future: Classroom- and laboratory-based collaboration between neuroscience and engineering departments  
• Limitations:  
  - Starting new technology at UNH (equipment challenges)  
  - Delay in getting other parts of groups involved based on these limitations |
## Collaborative for Indigenous and Rural Science Education (CIRSE)

**Project Objective(s):**
- Formalize our international network of indigenous and majority educators and scientists committed to rural and indigenous science education research
- Sustain communication and collaboration among our network of researchers
- Build capacity for conducting research in these communities and enhance competitiveness for significant external funding

**Progress and Lessons Learned:**
- Post-conference Grant Planning Workshop (Sept. 2011)
- Doctoral Level Online Course on Cross Cultural Research developed
- Center for Indigenous and Rural Science Education website: [www.unh.edu/cirse](http://www.unh.edu/cirse)
- Special Issue for the International Journal of Science and Mathematics Education re: culturally-relevant teaching for indigenous learners in science and mathematics (Dec. 2012 publication)

**Lessons Learned:**
- Advantages of this type of collaboration include:
  - Access to unique, low density, widely scattered rural and indigenous schools and communities
  - Partners have deep relationships with local communities, schools and cultural groups
  - Expertise across several academic disciplines that converge to address a central problem
  - Provides a voice for local communities to be involved in research and policy that affects them
  - Creates a working structure and guiding principles to work ethically with under-represented groups
  - Establishes a larger presence across research communities
  - Cultivating trusting relationships with communities is foundational to successful research
  - The organization has an accordion-like structure
  - Leadership is fluid but necessary for project success
  - The challenge of presenting a multi-disciplinary organization to disciplinary-specific funding agencies
  - Cross cultural, cross disciplinary and international communication is rewarding and challenging

## Landscapes, Networks, & Social Resource Decisions: Using Geospatial Technologies to Create Long-Term Models of Firewood Use

**Project Objective(s):**
- Create a space for dialogue and creative brainstorming

**Progress:**
- Project has really expanded in scope as a result of opportunities discussions
- More accurate title now: *Landscapes, Networks, & Social Resource Decisions: Developing Interdisciplinary Approaches to and Using Geospatial Technologies to Create Long-Term Models of Human-Environment Interaction*
- Two different projects have developed out of this working group so far:
  - Long-term Anthropogenic Influences on the Environmental Landscape of the Albertine Rift, East Africa
  - Mounds, Microclimates, and Maize: Understanding the Influence of Inland Lakes on Agriculture in Pre-contact Indigenous Societies using Remote Sensing and Paleoecology

**Lessons Learned:**
- Thinking outside disciplinary boundaries is extremely beneficial – big ideas, applied benefits
- Make strong connections with experts and international collaborators
- Need on-the-ground interaction (should have planned more of this in original proposal)
- Have fun!
### Project Title
- **Project Title**: Societal Dynamics of the Maya Collapse: Insights from Archaeological, Geochemical and Environmental Analyses
- **Project Objective(s)**:
  - Trace social, economic, and environmental change during the Classic Maya “collapse” period (ca. AD 780-900) via an interdisciplinary and international collaboration including the disciplines of:
    - Ancient Maya archeology (UNH)
    - Trace metal / isotope geochemistry (UNH)
    - Soil biogeochemistry (UNH)
    - Archaeoethnobotany (National Herbarium of Belize)

#### Progress and Lessons Learned
- **Progress**: To test our ideas and provide key baseline data for evaluating changes in the social and environmental conditions of the eastern Belize Valley, we are applying a five-part approach that includes:
  - Analyzing changes in the ceramic styles from sites excavated in the Belize Valley
  - Testing a subset of ceramic artifacts for residues of theobromine, a chemical biomarker of cacao
  - Determining variations in elemental and isotopic compositions of local and imported ceramics
  - Carrying out an archaeoethnobotanical survey for wild cacao to identify stands that may date back to Colonial and/or Prehispanic times
  - Conducting soil biogeochemical analyses to: trace the local source(s) of clay for ceramic production; document the type and biogeochemical conditions of the soils to gauge fertility, and determine the locations of ancient cacao plantations

- **Lessons Learned**: Collaboration adds scope and depth that enhances project greatly
  - Infrastructure building and personnel training is improved:
    - UNH undergrad assisted with Neodymium (Nd) chemistry of pots
    - Soil analyses at UNH
    - New UNH faculty member in COLSA providing GC/MS instrumentation for cacao biomarker work
    - Field school students gained experience with excavation, mapping, artifact collection, and soil sampling
  - Belize partners

### Incubating Interdisciplinary Sustainability Science Research at UNH
- **Project Title**: Incubating Interdisciplinary Sustainability Science Research at UNH
- **Project Objective(s)**:
  - Raise capacity for sustainability science research at UNH through development and support of Researcher Learning Communities facilitated by the Sustainability Research Collaboratory (SRC).

#### Progress:
- Spring 2011 Workshop: “Gulf of Maine and Grand Challenges: Incubating Sustainability Science Research at UNH”
  - 55 people participated: UNH faculty and staff, external partners
  - Agreed on sustainability science focus, “Sustainable Piscataqua – Sustainable Coasts,” emphasizing food, water, and health
  - Faculty Fellows and Roundtable Discussions
    - RT 1: Paradigm Shifts: What is interdisciplinary research?
    - RT 2: Faculty presentation of interdisciplinary methods
    - RT 3: Discussion on food systems research
    - RT 4: Topic focused on adaptive management
    - RT 5: Establishing Key Topics and Priorities for Spring 2012 Workshop

#### Lessons Learned:
- Perceived benefits of interdisciplinary research at UNH:
  - Information exchange or collaboration
  - New areas of investigation
  - Informing decision making
  - More relevant research
  - Ecosystem-based management or a systems approach
  - Sustainability research
  - Holistic
  - Fun and challenging
- Barriers to interdisciplinary research at UNH:
  - “Silos” / different paradigms
  - Funding and resources
  - Time
  - Communication / interaction
  - Rewards / incentives
- Strong desire to pursue interdisciplinary research
- Significant progress in bringing natural scientists and social scientists together
- Some disciplines (e.g., humanities) will require more intensive efforts to connect with, due in part to different cultures and incentive structures
- Researcher Learning Communities are effective -- proposals and relationships

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Photos courtesy of UNH Photo Services (top) and Karen Alexander, UNH-OPAL (bottom).
Office Profile: Research Partnerships & Commercialization

Contributed by Marc Sedam and Suzanne Snow

The Office for Research Partnerships and Commercialization (ORPC) is responsible for managing UNH’s intellectual assets to ensure they achieve maximum public benefit. ORPC also increasingly is becoming responsible for using technology as a valuable lever to promote local economic development opportunities through the creation of startup companies or by licensing to local enterprises.

UNH is similar to most employers in that it owns the intellectual assets created by employees in the course of their employment. Intellectual assets can be protected by patents, copyrights, and trademarks; each type of protection requires a specific strategy. Ideas are first presented to the Office via an Invention Disclosure that is specific for each asset class.

The breadth and depth of UNH’s research enterprise means that ample opportunities exist to bring our technology to the market. Though ORPC does not “commercialize” technology, per se, it is responsible for finding the right partner. The commercialization of technology generally happens along three lines:

- **Publish:** The classical method for promoting research ideas and results.
- **License:** ORPC negotiates license agreements to help legally transfer the right to use UNH technology to a third party. Licenses can be exclusive or non-exclusive, and generally contain upfront fees, royalties, and diligence requirements. Diligence requirements ensure that the licensee is actively developing the technology; if not, it is returned to the University. Licenses are “leases” to our technology and not an outright sale.
- **Start-Up Companies:** In rare instances, the best commercialization strategy is to have UNH create a company whose sole purpose is to develop a specific technology. Policy permits the university to accept equity (shares) in the startup with these holdings, generally around 5%.

Our recent efforts at promoting a culture of innovation and commercialization are showing signs of progress. Disclosures and patent filings are increasing and our goal is to significantly accelerate revenues from licensing in the coming years.

ORPC is responsible for reporting to the government any UNH inventions made with federal research dollars. We work closely with SPA to ensure compliance with these policies.

In addition to its intellectual property management activities for UNH, ORPC administers the NH Innovation Research Center (NIHRC) on behalf of the State of New Hampshire (see sidebar, p. 6). The InterOperability Lab also reports into ORPC.

The University of New Hampshire InterOperability Laboratory (UNH-IOL) tests networking and data communications products. Since 1988, the laboratory has fostered multi-vendor interoperability while preparing students for careers in the industry. The laboratory has grown steadily into one of the industry's premier independent proving grounds for new technologies.

The UNH-IOL’s mission is to provide a neutral environment to foster multivendor interoperability, conformance to standards, and improvement of data networking while attracting students to, and educating them for, future employment in cutting-edge technologies.

The UNH-IOL employs approximately 100 graduate and undergraduate students and 20 senior level technical staff. UNH-IOL engineers have a thorough knowledge of both industry standards (including IETF, IEEE, and ITU-T) and the methods for testing them.

This testing is conducted in the laboratory's 32,000+ square foot facility, which houses a multi-million dollar array of test equipment and the latest devices from member companies. In return for their latest devices and support, members are entitled to high-caliber interoperability and conformance testing against other vendors' devices – without having to incur the expense of setting up and operating their own test facilities. Membership in the UNH-IOL (Cont. on p. 6)
can be viewed as an extension of in-house testing and quality assurance. The UNH-IOL is 100% self sustained by members.

The UNH-IOL maintains a strong reputation for independent, vendor-neutral testing with a focus on quality assurance rather than marketing or promotional goals. The confidential test reports the UNH-IOL provides to its members are recognized throughout the data communications industry as evidence of interoperability and conformance to technical standards.

The UNH-IOL provides a unique advantage to its student employees. While working with the members and technical staff, the students have the opportunity to apply what they are learning in the classroom to a real world setting. They get paid to learn, enhance their education, and prepare for their future employment in the field of engineering.

NHIRC is a matching grant program that connects New Hampshire companies with expertise at research universities to solve scientific or technical problems.

Established in 1991 and funded by the New Hampshire Legislature, it has awarded more than $6 million in state funds to research for 129 companies in New Hampshire.

Since 2004, results from NHIRC projects have enabled companies to receive $1.267 million in federal grants for technology development and fostered many long-term relationships between university researchers and industry partners.

The ORPC administers the NHIRC program on behalf of the State.

Find out more …

Office of Research Partnerships and Commercialization: http://www.unh.edu/research/orpc
UNH InterOperability Lab: https://www.iol.unh.edu/general/
NH Innovation Research Center: http://www.nhirc.unh.edu/
May activities included attending the Whittemore School Holloway Prize Innovation-to-Market Competition, a great event and an opportunity to talk to budding entrepreneurs. The winning project was:

**Sensible Spreader Technologies LLC**  
Andrew Jaccoma, MBA, WSBE; Olha Johnson, MBA, WSBE  
Faculty Advisor: Robert A. Gough, Jr., Ph.D., WSBE

“The Sensible Spreader System uses an integration of GPS technology and mechanical spreader systems, allowing the driver to focus on the road while the GPS-based spreader system focuses on applying the de-icer best suited to the particular location and environment that the truck is transiting. Sensible Spreader would allow the user to apply nonchloride de-icers (such as potassium acetate) only in the necessary areas, and allow the use of traditional de-icers elsewhere.”

Externally, I participated in a state-wide STEM Education meeting and an NSF funding meeting for NH’s public universities and colleges (including the community technical college system), and I continued working with the UNH Manchester Advisory Committee and UNH School of Law Board. This is consistent with President Huddleston’s commitment to graduate more STEM majors over the next five years.

May also took me to NSF’s headquarters for a meeting of representatives of the 28 EPSCoR states and 3 territories. In addition to a discussion on sustainability linkages with EPSCoR, the group heard Joan Ferrini-Mundy, head of NSF’s Education and Human Resources Directorate, speak about ways in which STEM education can be improved through capitalizing on EPSCoR programs. Dr. Ferrini-Mundy formerly was a professor in UNH’s math department.

So it has been a busy month, with another busy one to follow. Enjoy the warm weather!  

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**SVPR’s Corner**  
*cont. from p. 1*

**Comings, Goings, & Goings-on**

RCI has welcomed **Angela Flanagan** to its ranks as a software engineer. She brings to her new position 15 years of experience in web development and a BS awarded in 1997 by UNH.

SPA was well-represented at the recent NCURA Region 1 meeting. **Erin Jenkins, Diana Markham** and **Marilyn Qua** from Sponsored Programs Financial Management attended, as did **Dianne Hall, Karen Jensen**, and **Amanda Pimentel** from Research Administration.

**Kudos!**  
Dianne’s attendance was supported by a UNH Professional Development Award, while **Amanda** received 1 of only 2 NCURA Region 1 Travel Awards to attend the conference.

Meeting activities included updates from federal agencies on policies and procedures, workshops, concurrent sessions, and discussion groups addressing the gamut of sponsored programs responsibilities, and networking and volunteer opportunities.

One of those volunteers was **Karen**, who served on the NCURA Region 1 Planning Committee for the meeting.

**Kathy Cataneo** and **Lynnette Hentges** (both of RDC) attended the 4th Annual Research Development Conference in Alexandria, VA in mid-May. Hosted by the National Organization of Research Development Professionals, the conference was a great opportunity to compare notes with RD staff from around the country and across a wide range of institutions, get new ideas, and share some of UNH’s successes.
Comings, Goings, & Goings-on, cont.

10 Research Office members were among the 205 staff honored in May for achieving benchmark years of service:

- **30 years**: Kathleen Stilwell (RIS)
- **25 years**: Tammy Goldberg (OSVPR (T-Hall))
- **20 years**: Julie Simpson (RIS), Allan Wright (RCI)
- **15 years**: Thomas Hurton (RCI), Robert Noseworthy (IOL), Victor Sosa (SPA)
- **10 years**: Erica Johnson (IOL), Noreen Norman (SPA), Kalle Matso (CICEET)

*Kathy Stilwell* with President Huddleston and other 30-year staff who were recognized at the ceremony on May 4th.

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**Dean Elder (ARO/RIS)** was one of 4 staff to receive the Presidential Award of Excellence for demonstrating excellence through his outstanding performance in his position and a record of dedication to, and a concern for, the University community.

*Photos*: Lisa Nugent, Photographic Services

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[Link to UNH Research website: www.unh.edu/research]