Advancing Maine
Reports on Current System-Wide Initiatives

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INNOVATION ENGINEERING: DEVELOPING MORE INNOVATIVE INDUSTRIES AND THE NEXT GENERATION OF INNOVATORS AND ENTREPRENEURS

Jake Ward, Assistant Vice President of Research, Economic Development, and Governmental Relations, University of Maine

To make companies more entrepreneurial and globally competitive and to encourage more students to pursue higher education and be better prepared to work in the innovation economy.

For the state of Maine to remain competitive, it is essential that we have a culture that is innovative and entrepreneurial. Unfortunately, in a recent study by the Ewing Marion Kauffman Foundation, Maine ranks 32nd in the country in its capacity to compete in the new economy. Perhaps even more worrisome, Maine ranked 38th in the number of fast growing firms and 43rd in the number jobs in fast growing businesses.

To create this culture, we must start teaching students about innovation at a young age, provide opportunities for students at all levels of higher education, and assist current business leaders and entrepreneurs. In 2005, the Foster Center for Student Innovation at the University of Maine in Orono began the development of a unique new interdisciplinary program called Innovation Engineering. This program prepares Maine’s next generation of innovators and entrepreneurs and help existing companies grow and succeed.

Innovation Engineering teaches students a systematic approach to innovation. The fundamental concepts of the program include tools and methods for creating, communicating and commercializing ideas. It is offered as a minor or graduate certificate that complements any major or field of study including sciences, arts, humanities, business, engineering and education. Students learn how to employ the tools and methods of innovation in their field of interest. These skills are essential to participation in the global economy and will prepare graduates to lead the commercialization of new products, services, and technologies.

Since its creation, the program has gained attention all over the world with media recognition and interest from several colleges and universities in offering Innovation Engineering at their schools. Recently, Innovation Engineering was adapted to create an executive education program for business, government, and non-profit leaders. In just three months, the Innovation Engineering Leadership Institute has trained more than 300 Maine businesspeople from leading companies and non-profit organizations (i.e. Cianbro, Wright Express, Eastern Maine Healthcare, and The Jackson Laboratory) as well as dozens of small and medium sized companies and service firms. The response has been tremendous, and many participants are seeking interns and graduates from the program.

While the programs in Orono and executive education are a good beginning to expanding Maine’s innovation culture, Innovation Engineering includes fundamental skills that should be available throughout the state. It is our goal to implement the program at the University of Maine System campuses, other higher education institutions, and K-12 schools. Plans are underway for partnering with other schools and adapting the program to meet the needs of different student and business audiences.
SYSTEM-WIDE PROGRAM INITIATIVES IN NURSING

Judith A. Spross, PhD, RN, FAAN

Nursing is the protection, promotion, and optimization of health and abilities, prevention of illness, and injury, alleviation of suffering through the diagnosis and treatment of human responses [to health problems], and advocacy in the care of individuals, families, communities and populations. American Nurses Association.

Context
According to a draft report from Maine’s Health Workforce Forum, existing shortages of healthcare professionals are expected to grow over the next decade. The combination of an aging nursing workforce, the workforce shortages in practice and nursing education, and the expected health care needs of Maine’s citizens all contribute to a serious shortage of professional nurses and nursing support staff. In addition, this shortage of faculty affects the preparation of advanced practice nurses, particularly nurse practitioners, professionals who are part of the solution for improved access to primary care. For nursing educators, the shortage of nursing faculty means our capacity to educate sufficient nurses and nurse practitioners is constrained. There are thirteen nursing education programs in Maine that prepare RNs (Associate’s degree or Bachelor’s degree). In 2010, most of these institutions are conducting searches to fill a minimum of 19 available nursing faculty positions in Maine. Salaries in nursing education (Mean = $47,100 for master’s-prepared nursing faculty and $58,200 for doctoral nursing faculty) are not commensurate with those in advanced nursing practice (about $13,000 more per year). Attracting qualified nursing faculty is a challenge. Further compounding the problem, clinical placements for students in health care agencies are already stretched— increasing capacity in enrollments will require creative solutions to ensure that new graduate RNs have the knowledge and skills they need. The faculty: student ratio in 2007 was 1 to 16 and increased to 1 to 21 last year. The number of applicants to schools of nursing who are qualified for admission but denied is significant.

Needs/challenges
- Increase capacity in nursing education to increase graduate nurses
- Make nursing education affordable
- Have the administrative flexibility to create joint appointments in which faculty teach and can also practice to maintain their skills and/or advanced practice credential
- Develop new ways of working with clinical agencies to have sufficient clinical placements that provide students with the experiences that foster competence
- Maintain competitiveness with regard to integrating and using health information technology in our programs
- Determine best ways to use technology to transcend geography and achieve economies of scale and efficiencies
- Improve methods for collecting and analyzing nursing workforce data
- Develop creative, efficient, and effective strategies for revising curricula in response to changing demands in practice
- Acquire funds to support system-wide activities and innovation

Current Initiatives (not exhaustive)*
UMS system nursing faculty department leaders:
- meet regularly by conference call
• will prepare a report on UMS nursing for the Vice Chancellor in April
• will submit an application to the Strategic Investment Fund to support system-level work in nursing education
• will meet May 5, 2010 to:
  o Identify needs and develop common approaches to policies, joint grant applications, clinical agency contracts and other standard/required activities
  o Identify each campus’s program strengths, needs, and opportunities for sharing resources related to undergraduate and graduate nursing education
  o Develop goals and objectives for the coming year that will advance system and campus goals related to nursing education

UMS nursing faculty are:
• active participants in the Health Workforce Forum, including partnering with the Department of Labor on the ARRA grant awarded to the Department of Labor
• expecting to use information gained at a HRSA technical assistance workshop to prepare a collaborative grant to that agency
• collaborating with other UMS faculty and staff, state agencies, the Organization of Maine Nurse Executives (OMNE) and employers to collect data on the nursing workforce (practice and education); for example, nurses are surveyed when they renew their licenses. These data are used to create the nursing Minimum Data set (MDS) (the Maine Office of Data Research and Vital Statistics). Data about nursing education in Maine are collected periodically and are posted on the USM website
• integrate evidence-based practice content into the curriculum; faculty also sponsor or participate in programs that prepare students and practicing nurses to use evidence-based practices
• partner with CMMC and St. Mary’s to create health career pathways in central Maine
• involved, as members of OMNE, in the Partners in Education and Practice initiative and have submitted grants to strengthen practice/education partnerships
• initiating other partnerships between UMS nursing faculty and clinical partners *some initiatives involve multiple campuses and some are campus-specific

University of Maine System Nursing Collaborative
Nancy J Cooley MSN, RN, FNP-BC, Coordinator and Assistant Professor, Nursing, UMA
http://uma.edu/nursing.html
Nancy J. Fishwick, PhD, RN, FNP, Director and Associate Professor, School of Nursing, UM
http://www.uma.edu/nursing/
Krista Meinersmann, PhD, RN, Director, School of Nursing, USM
http://www.usm.maine.edu/nursing/
Erin Soucy, Director and Assistant Professor, Division of Nursing, UMFK
http://www.umfk.maine.edu/nursing/default.cfm?ref=2
Judith A. Spross, PhD, RN, FAAN, Dean and Professor, College of Nursing and Health Professions, USM

Related websites:
Maine Nursing Workforce http://www.usm.maine.edu/conhp/visitors/nursingworkforce.html
US DHSS, Bureau of Health Professions http://bhpr.hrsa.gov/healthworkforce/
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UNIVERSITY OF MAINE SYSTEM STEM INITIATIVE
(STEM = SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS)

Allyson Hughes Handley, President of the University of Maine at Augusta

State-wide Need

The future of Maine’s 21st century economy depends directly on the STEM disciplines and on the vigor of STEM pipeline throughout K - 20 education. The STEM pipeline in Maine is “leaking” as we experience declining university enrollments and low graduation rates in many core STEM disciplines such as physics, chemistry, computer information systems and engineering.

Current Actions

Recognizing the need to improve the STEM pipeline, the Chancellor provided funding to support a system-wide effort to create solutions within this critical academic area. The Chancellor’s UMS STEM Initiative is co-chaired by Dr. Susan Hunter, Provost UMO and Dr. Allyson Handley, President UMA. The focus of the initiative is on a) developing an inventory and assessment of UMS STEM programs, b) supporting a K-12 focus to improve the pipeline in STEM, and c) creating UMS collaborations and developing external partnerships that strengthen STEM within Maine.

Presidents and provosts actively review campus enrollments within the STEM disciplines. All seven campuses have undertaken specific initiatives to improve the STEM pipeline within each region of the state.

One example of an activity that embraces all three focal areas within the UMS STEM Initiative is the NSF funded planning grant awarded to the Maine Mathematics and Science Alliance. The UMS is a partner in this grant along with KVCC, the DOE and the DOL in the development of a model seventh grade curriculum in the area of energy. Planning is taking place to submit a proposal to NSF ($3 to 15 million) for implementation of the energy curriculum throughout the state of Maine.

Proposed Future Actions

The UMS STEM Summit is scheduled for April 12th at UMO. Provosts and STEM academic teams from each of the public universities will assemble for a day-long event designed to strengthen STEM programs within the UMS.
TOURISM AND HOSPITALITY EDUCATION INFRASTRUCTURE

Center for Tourism Research & Outreach (CenTRO)
Dr. Harold Daniel, Director, Dr. Charles Colgan, Associate Director & Marilynne Mann, Research Assoc.

Tourism is the largest industry in the new global economy and in Maine by employment. It can be thought of as an export industry because travelers come from all over the world to Maine and take home memorable experiences, while spending money here. Maine has proclaimed itself “vacationland” since the 1930s, however what were once unique assets to attract tourists are no longer as unique or compelling as they once were. Vacationers who visited Mt. Desert island to see “the only fjord in North America” (Somes Sound) now take a cruise ship in Norway to see “real” fjords. Maine’s ability to position itself in this competitive global market depends more and more on differentiating ourselves on the quality of the tourist experience. That depends on the quality of the people in Maine’s travel, hospitality and recreational industries. Other countries have been developing travel and tourism as distinct professions with the educational infrastructure to support these professions. In Maine, however, we still tend to think of tourism and recreation jobs as “bad jobs”, not worthy of any serious development attention.

There is a wide diversity of educational needs. Tourism and hospitality business owners and managers require specialized instruction in human resource management, accounting, finance and marketing for their businesses. Highly skilled service personnel need specialized instruction in delivering outstanding visitor experiences. As a result of a 3-year investigation into the available educational infrastructure for the tourism industry in Maine, CenTRO has discovered that segments of the needed educational infrastructure are spread across the University of Maine System and the Maine Community College System. However, only Husson University and Thomas College provide hospitality management courses in the context of a 4 year degree program.

Small Business Development Centers, University of Maine Cooperative Extension, local Chambers of Commerce and other community development entities provide workshops supporting the business community at large and some occasionally offer customer service instruction in support of the hospitality industry. However, specialized instruction for the lodging industry represents a gap as does instruction in marketing and sales for tourism and hospitality business managers already in the field.

There are two major opportunities for UMS to address need for a better educated tourism workforce:

1. Provide courses, degrees, concentrations, certificates, internships and other opportunities at both the graduate and undergraduate levels to expose students to tourism, hospitality and recreation as professional options and to allow those who wish to specialize in these areas to do so. There are existing concentrations, minors and degrees on all seven campuses that can form the foundation for these efforts.

2. Further develop extension services from UMS campuses to directly assist managers and personnel in tourism through workshops, online courses and other means that would focus on the particular needs of the tourism, recreation and hospitality industries and workforce.
WORLD LANGUAGES

Allen Berger, Provost, University of Maine at Farmington

(1) State-wide need
The state of Maine and the University of Maine System face parallel challenges. Within the state, as is the case nationwide, we have few citizens who are fully bilingual, particularly with fluency in critical world languages. The consequences for Maine are numerous. Most important, given our themes at today’s Summit, this situation is an impediment to economic development, particularly the growth of worldwide trade relationships and the need to recruit and support an increasingly diverse workforce. Within the university system, enrollments in world languages are low and world language requirements are minimal. The small numbers of graduates and high percentage of under-enrolled classes have led to decisions to eliminate or reduce some foreign language programs.

(2) Current actions
The chief academic officers of the University of Maine System, let by Provosts Allen Berger of UMF and Kate Forhan of USM, have agreed to focus attention on potential collaborative strategies to share curriculum, shore up enrollments, and encourage world language study at least through the intermediate (200) level. Students who achieve this level of proficiency, wherever possible, should be encouraged and supported to pursue opportunities for study abroad.

(3) Proposed future actions
Our intention is to continue to gather information about national (even international) best practice, soliciting expert advice and working collaboratively with the University of Maine System language faculty and seven chief academic officers to devise appropriate reforms and interventions. The CAO’s have already discussed the need to avoid excessive duplication across the campuses and to establish complementary centers of excellence, for example in Chinese at UMF, which has a twenty year history of teaching Chinese and participating in an exchange relationship with a university in Beijing. The UMS arguably needs additional centers of excellence in other critical world languages. We must decide what those are (Spanish?, Arabic?, Portuguese? etc.). A second challenge is to devise approaches to promote access to language instruction. We must determine appropriate roles for technology-assisted learning, distance learning, use of native language speakers, etc. while we continue to invest in highly qualified language faculty. In a preliminary report prepared in June of 2009, Mark Lapping, Interim Provost at USM, wrote: “The UMS language-teaching faculty agree that introductory (and in some cases inter-mediate) language courses belong in the traditional classroom.” This assertion merits evaluation and consideration; it demonstrates the potential tension between quality and access, between the desire to provide the most effective learning environments and the need to control costs and promote efficiency.

Bringing students to intermediate proficiency in a second language is traditionally of course only a small part of university-based language programs. In-depth education in a world language is as much about literature and culture as it is about technical proficiency in grammar, vocabulary, basic reading, and oral communication. Ideally the UMS will be able to continue to support students seeking this more in-depth learning; it is threatened by the current financial crisis, and we all must ask hard questions about the role and scope of language majors and minors in the future and our need for such programs in Maine.