Science Management

New Program Proposal

Date Submitted: Tue, 15 Sep 2015 19:23:49 GMT
Proposed by: Mark Jakubauskas

Academic Career: Graduate, Lawrence
Program Type: Certificate
Constituent Programs Department/ Program: Environmental Studies (EVRN)
School/College: College of Lib Arts & Sciences
Consulting Department(s): Engineering Management
Program Name: Science Management
Do you intend for this program to be offered online?: Yes
Other Resources: Center for Online and Distance Learning
Effective Catalog: 2016 - 2017

Program Description
The KU Environmental Studies Program proposes to create a graduate certificate in science management. This certificate will provide academic recognition of the completion of a series of six courses designed to provide graduate students in science fields with professional skills necessary to advance their careers.

Why “Science Management”?
Scientists have been trained to focus on specific disciplines where the majority of their team members or coworkers have similar technical backgrounds and "speak" the same language. As a scientist progresses in their career at a company or agency, they increasingly begin to supervise and manage people and projects - tasks they have generally never been trained for. When a technical individual crosses over to a program lead or manager role, he or she must acquire a new suite of skills in leadership, planning, and collaboration with other (often non-science) units within an organization. We seek, by means of the science management program, to give scientists those skills. With industry collaboration, we have identified six focus areas that will become the courses for a unified program: Project Management; Organizational Management; Financial Management; Talent Management; Organizational Communication; and Law, Ethics and Intellectual Property.

This graduate certificate is aimed at two primary cohorts of students: First, graduate students in the biological, physical, and earth/environmental sciences who foresee a career in a science-oriented private company or governmental entity, and, anticipating the need as they progress in their careers, wish to add these skills to their portfolios; and second, science professionals who already possess graduate degrees in their field and need to attain these professional skills, but neither desire nor need another graduate degree yet wish to have the recognition that a graduate certificate from KU provides.

Why Environmental Studies?
The array of professional skills proposed for this certificate spans numerous departments and programs at the university. We therefore propose an inherently interdisciplinary program – Environmental Studies – as the home of an inherently interdisciplinary certificate – Science Management.
Furthermore, the certificate builds on the Environmental Studies Professional Science Masters (PSM) graduate degree program that itself combines professional skills courses with graduate science
Demand/Need for the Program
Increasingly, we are seeing the acknowledgement that regardless of degree or field, our students will need professional skills to maximize their career opportunities and advance professionally. The new Bachelors in Biotechnology degree at the KU-Edwards campus has nine (9) credit hours of communications, statistics, and project management coursework in addition to general science and biotechnology courses; the KU Professional Science Masters, launched in 2013, explicitly incorporates 12 credit hours of graduate courses in project management, organizational communication, finance, and entrepreneurship; and the Master of Science in Immunology and Infection Biology under development at KU Med incorporates 9-12 credit hours of such professional skills.

In 2015, Initiatives, Inc., conducted in-depth interviews with 43 professionals representing 34 organizations in the Kansas City region in order to understand regional employer needs to aid the KU-Edwards campus and KU Continuing Education in designing and delivered curriculum responsive to workforce needs. Business and management skills were listed as a top priority, with the report noting, “Companies have brilliant technical personnel who don’t know how to manage a project, people or markets. They don’t have the academic or work experience in areas of financial acumen, people management, leadership and development.” In response to the survey question “How important is it to your organization to train technical experts and scientists to be managers?,” 39% and 50% of respondents replied that it was either “Important” or “Very Important” to their organization, respectively.

Workforce development has been a key issue for the Kansas Bioscience Authority and the Kansas City Area Life Sciences Institute (KCALSI). While much of this focus has been on development of strong math and science skills, attention has also been on the development of professional skills in scientists. This need was identified in 2008 in a survey of bioscience industry leaders by the Docking Institute of Public Affairs and more recently in a facilitated working session focused on talent development for the region’s bioscience industry in March 2015 at the One Health Summit in Kansas City.

Comparative/Locational Advantage
There are no comparable science management certificates or degrees in neighboring states. However, the “Science Manager” concept is growing nationwide, and several universities have developed or are developing such programs: Rutgers, The State University of New Jersey, Wake Forest University, Stanford University, SUNY-Brockport, Webster University, Northwestern University, George Mason University, the Keck Institute of Life Sciences, and Roosevelt University in Chicago.

Not uncommonly, the “Science Manager” certificate or degree at a university is a sister program or offshoot of the Professional Science Masters (PSM) degree program. The PSM is a unique graduate degree that combines business and professional skills with graduate science classes. KU currently offers a PSM in Environmental Assessment at the KU Edwards Campus for the Environmental Studies Program.

At KU, a program similar in certain respects to the proposed Science Management Certificate (but for public managers) exists in the Public Management Center, the professional development arm of the School of Public Affairs and Administration. The PMC offers educational programs to meet the leadership training needs for public service professionals. These programs include the Certified Public Manager Program, the Emerging Leaders Academy, and the Law Enforcement Leadership Academy. The curriculum is designed to reflect the management skills and competencies needed to successfully manage projects, people, policies, and programs in today's public sector workplace. What PMC does for public managers, we propose to develop and offer for science managers.
Admission Requirements
For information on admission to a graduate certificate program, see the policy on Graduate Certificate Programs-Eligibility and Admission Criteria

Degree Requirements
Completion of all six courses in the proposed curriculum with a grade of "B" or better in each of the six courses:

On January 15th, 2015, the KU-Edwards campus convened over 25 scientists, managers, executives, and human resources specialist from regional science-oriented companies and agencies in a Science Manager Curriculum Development Workshop. At this workshop, the general objectives of and needs were presented to the group, and facilitated small-group discussions were used to elicit from the participants the ideal skillset for a scientist-manager and the curriculum for a science manager program. Based on discussions with managers and scientist at companies and agencies, focus groups, and surveys, we have crafted a 12-credit-hour, 6-course curriculum designed to address the need for professional skills by science professionals.

12 credit hours:

EVRN 771: Project Management for Science Managers (2.0)
EVRN 772: Organizational Management for Science Managers (2.0)
EVRN 773: Management of People in Science Organizations (2.0)
EVRN 774: Financial Management in Science Organizations (2.0)
EVRN 775: Organizational Communication for Science Managers (2.0)
EVRN 776: Law, Ethics, and Intellectual Property for Science Managers (2.0)

Faculty Profile

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<th>Name of Faculty and Rank</th>
<th>Highest Degree</th>
<th>Number of Faculty FTE</th>
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<tbody>
<tr>
<td>Marilu Goodyear, Professor, SPAA</td>
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<td>John Bricklemeyer, Professor of the Practice, Project Management</td>
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<tr>
<td>Joy Koesten, Lecturer, Communications</td>
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<td>Linda Miller, Professor of the Practice, Engineering Management</td>
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<td>Emmett Perry, Lecturer, School of Business</td>
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Additional instructors will be identified and drawn from the university and relevant industry.
Student Profile

Anticipated Student Enrollment

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<td>Year 2</td>
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<tr>
<td>Year 3</td>
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Anticipated number of program graduates
After 5 Years 50
After 7 Years 75

Academic Support
None

Facilities and Equipment
None. Courses will be taught at the KU-Edwards campus and online.

Program Review, Assessment, Accreditation
The College and Graduate Studies will evaluate the certificate program every 7 years as part of the mandatory review and renewal process for all graduate certificates.

KU-Edwards will develop a Science Management Advisory Board, drawing on scientists in the private and public sector in the greater Kansas City Metro area. A number of persons who participated in the Science Manager Curriculum Development Workshop at the KU-Edwards campus in Overland Park on January 15th, 2015, indicated their interest in participating in such a group.

Costs, Financing

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What is the source of the new funds?
KU-Edwards VC funds.

Rationale for proposal
The worlds of science and business are increasingly interconnected, creating strong demand for professionals who can combine scientific technical knowledge with skills in leadership, business and communications. The proposed certificate capitalizes on the assets and locational advantage of the KU-Edwards campus to provide a unified, interdisciplinary, interlinked suite of professional skills to scientists taking on leadership roles in their organizations.