Economic Development Incentive Grant 2013-14 Annual Report

Institution Name(s): UW-Milwaukee UW-Parkside	Project Title: SE WI Applied Chemistry Center of Excellence
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Grant Award Amount: $2,998,800	**Report Date: July 18, 2014**
Grant Funding Spent (to date): $2,608,951	**Date project began: Jan. 2, 2014**
	Date project ends (projected): June 30, 2015

I. Status Report

Consistent with the proposed timeline, the 6 month "Center Launch" phase of the project plan has been completed as of 6/30/14. Please note the following actions completed during this phase.

- Analytical laboratory renovation – To facilitate rapid start-up of Center operations, the analytical laboratory is being temporarily housed in UWM's Chemistry Building (per plan). Room 283 was upgraded to accommodate major instrumentation and corresponding utility requirements. The renovation has been completed and the lab is fully operational.

- Corporate sponsorship – To leverage the Incentive Grant, a matching grant in the amount of $1.13 million was secured from Shimadzu Scientific Instruments, Inc. to offset the cost of major instrumentation (mainly mass spectroscopy). The grant also provides 5 years of service, training, applications support, and technical support. In recognition of Shimadzu's support for the Center, UWM formally agreed to name the new laboratory the "Shimadzu Laboratory for Advanced and Applied Analytical Chemistry."

- Instrumentation IQ/OQ – Major instrumentation has been installed and undergone operational qualification. The flagship instrument (MALDI-TOF mass spectrometer) was manufactured to order and will be on site later this summer.

- Technical training course – To optimize the impact of the new analytical instrumentation, classes are underway to train graduate students, post-docs, and faculty on operation and data analysis. New users, once qualified, will be authorized to apply their expertise to independent or collaborative industrial projects. Approximately 40 researchers will be trained by the end of 2014.

- Translational grant program – A call for proposals was announced, which resulted in 23 grant applications from UWM and UWP faculty. A review committee of experts in chemistry, business, and technology transfer was assembled to review the proposals. Upon review, 11 proposals were funded (totaling $739,629) to support research involving faculty and the following Wisconsin businesses.

  Advanced Chemical Systems
  Aurora Spectral Technologies
  AviMed Pharmaceuticals
  Bio-Technical Resources
  EigenBio
  IsopointTechnologies, LLC

Kohler
Pacific Sands, Inc.
Rust-Oleum
Sigma-Aldrich
Wholechem

- Transitional skills/internship course – An upper level undergraduate chemistry course entitled "Scientist Career Transitions" was developed and offered at UWM for the first time during the Jan-May semester (D. Stafford was the instructor). Examples of course topics include: business organizations, professionalism, conflict resolution, regulation, cross-functional teams, intellectual property, project management, and entrepreneurship.

- Outreach – To promote awareness of the Center and its resources and promote industrial linkages, D. Stafford was featured on WUWM's "UWM Today" program (see http://wuwm.com/post/uwms-new-applied-chemistry-center-excellence).

- Sustainability - new grants/collaborations – Approximately 30 new grant proposals, research collaborations, educational partnerships, or service arrangements have resulted from Center activities since its launch. These arrangements involve numerous faculty members and regional national funding agencies, foundations, industry partners, universities (e.g., MCW, Columbia University), and a charter school (e.g., Watertown WI Endeavor School). Taken together, these arrangements demonstrate the impact of UWM's chemistry excellence in research, education, and industrial vitality. In addition, a major contributor to sustainability of the Chemistry Center operations is the Shimadzu grant, which provides 5 years of ongoing service and maintenance of instrumentation, applications support, materials support, and technical support.

II. Updated Goals/Performance Metrics and Assessment Plans

All major elements of the "Center Launch" has been completed as planned. In light of the Chemistry Center's resources, numerous researchers on campus and external investigators wish to form collaborations. Much of the focus of the Center's operations going forward will support these collaborations (which will have major contributions to sustainability).

We have initiated the Center's internship program through the launch of a transitional skills course for upper level science undergraduates. To expand the reach of this program we will open the course to graduate students and promote it more broadly within STEM departments. We expect these efforts will substantially increase the number of students interested and available for internship placements.

III. Project/Program Budget and Expenditures

Please note a spreadsheet below that corresponds to the Incentive Grant budget line items. The Sources and Uses of funds for the Chemistry Center to-date are as follows:

Sources: The total budget for the Chemistry Center program (from initiation through the end of fiscal 2015) is $4,128,800. This total reflects the sum of the Incentive Grant ($2,998,800) and the award of a corporate matching grant from Shimadzu Scientific Instruments, Inc. ($1,130,000). Accordingly, all program funding commitments have been secured as planned.

Uses: The most significant expenditures were for the purchase of major instrumentation to outfit the core analytical chemistry laboratory. The net instrument purchase price was $1,688,259 (giving effect to the corporate grant of $1,130,000). To accommodate the new instrumentation, upgrades of existing spaces in the UWM Chemistry Building were completed at a cost of $49,770. Accrued salary expenses totaled $55,793.

The initial phase of the Translational Grant program was completed, which resulted in awards to fund 11 collaborative research projects involving UWM/UWP faculty and Wisconsin businesses. Awards totaled $739,629. The allocation of funds to the accounts of individual faculty principal investigators followed existing procedures and policies in place at UWM/UWP for similarly structured programs and meet all applicable compliance requirements. Pursuant to the terms of the award agreements, all funds must be expended prior to the end of fiscal 2015.

Consistent with the Incentive Grant proposed budget, $71,600 was transferred to UWP for chemistry instrumentation upgrades.

Incentive Grant funds expended in fiscal 2014 totaled $2,608,951. The substantial front-end loading of expenses was planned and necessary to provide the research resources and infrastructure to support the array of research projects and emerging collaborations of the Chemistry Center.

	Funding Souce	
	Incentive Grant	Corporate Grant
Center Management & Operations		
Salaries	55,793	-
Admin. Expenses	-	-
Facilities & Instrumentation		
Lab upgrade	49,770	-
Core instruments	1,688,259	1,130,000
General laboratory	-	-
Grants		
11 Translational grants	739,629	-
Internships	2,843	-
Laboratory operations		
UWP upgrade	71,600	-
Supplies	1,057	-
	2,608,951	1,130,000

IV. Changes

Staffing in support of the Chemistry Center continues according to plan.

All major elements of the launch phase of the Chemistry Center (completed as of June 30, 2014) have been completed as outlined in Section I above.

Program direction remains on track as set forth in the Incentive Grant proposal. Translational Grant awards represent a diverse array of chemistry-intensive Wisconsin companies – large-established, small-emerging-entrepreneurial, device, bio-medical, food, agriculture, industrial chemical, consumer goods, and environmental. Several awards went to companies commercializing technologies developed at UWM. These programs are wholly-consistent with the Incentive Grant objectives to support the vitality of Wisconsin industry and develop a relevant, trained work-force.

The educational objectives of the Chemistry Center are also taking shape. The first transitional skills course was launched and high-level training in instrumentation has begun. A new program in industrial fermentation will be launched, which will impact about 20 students in the first year alone. To increase the number of students participating in internships with collaborating businesses we will expand efforts to promote the internship program and engage students at least a semester before the start of an internship placement.

In light of the significant interest in collaborative research that engages the Chemistry Center, substantial effort will be dedicated to writing research grants to secure extramural funding. The Department of Chemistry and Biochemistry will provide in-kind support for these efforts with grant writing and logistics support.

UW System Incentive Grant
General Outcomes/Goals Reporting Matrix
2013-14

Incentive Grant Program Name: **SE Wisconsin Applied Chemistry Center of Excellence**
Funding Allocation: **$2,998,800**

#	Performance Outcomes Descriptions	Assessment Plan Description	Projected Goals 2013-14	Actual 2013-14 Outcomes	Projected Goals 2014-15
1	**University/Industry Collaborations**	Collaborations will employ Center faculty and instrumentation and engage undergraduate and graduate trainees.	**3**	**11**	**7**
2	**IP creation**	University-industry collaborations will lead to inventions involving new products or processes that may be protectable as trade secrets or patents. The Center will work diligently under the direction of relevant patent offices to file patents where appropriate.	**0**	10 of the Translational Grants are focused on development of inellectual property in the form of patents or commercializable trade secrets	**1**
3	**Job creation**	We seek job creation from collaborations that result in new products or processes and patentable inventions. We will require industrial partners to provide accurate accounting of job creation within their organizations that result from the Center's scientific collaborations/grant funding.	**0**	**1**	**8**
4	**Internships**	We seek substantial placement of UWM/UWP undergraduate chemistry students into regional/statewide businesses to gain professional experience and workplace competencies.	**15**	8 students took part in the transitional skills course (Chemistry 489). 3 activities have been arranged.	**35**
5	**Grant funding**	The interaction of university and industrial scientists will increase the competitiveness for extramural (typically federal) research funding. Initil metrics will be submissions of NIH (or equivalent) grant applications	**2**	**2** NIH grants have been submitted that envolve Chemisty Center resources. 4 UWM Research Foundation grants were submitted - 2 were funded. Preliminary experiments are underway to support several other NIH and private foundation grants.	**4**
6	**Publication/visibility**	The stature of the Center is important for its long-term economic impact, thus we will encourage faculty publication of research results and hosting of symposia to showcase the region and its technological assets.	**2**	The first symposia has been organized and is scheduled for July 30. The Center was showcased on UWM's "UWM Today" radio show in April. Several scientific reports were presented at the annual meeting of the American Chemical Society	**4**

UW System Incentive Grant Program
Required Program Goals/Outcomes Reporting Matrix
2013-14

Economic Development Goals and Results

Economic development program" means a program or activity having the primary purpose of encouraging the establishment and growth of business in this state, including the creation and retention of jobs, and that satisfies all of the following:

1. The program receives funding from the state or federal government that is allocated through an appropriation under ch. 20
2. The program provides financial assistance, tax benefits, or direct services to specific industries, businesses, local governments, or organizations.

Performance Categories	Goals		Actual Outcomes 2013-14	Accomplished Goal? Yes or No	Notes
	Projected 2013-14	2014-15			
# of Jobs Created	0	8	1	Yes	
# of Jobs Retained	0	0	0	Yes	
# of Businesses Assisted	3	7	11	Yes	

Additional Goals/Outcomes	Goals		Actual Outcomes 2013-14	Accomplished Goal? Yes or No	Notes
	Projected 2013-14	2014-15			

UW System Incentive Grant Program
Required Program Goals/Outcomes Reporting Matrix
2013-14

Development of a Skilled and Educated Workforce

Programs that have as their objective the development of an educated and skilled workforce, such as the following:

a. Increasing the number of bachelor's, master's, and doctoral degrees awarded in fields for which occupational demand is high or in fields that the board and the department of workforce development jointly determine to be high-demand fields.

b. Increasing the number of opportunities available to students to gain work experience in their fields through internships or cooperative work experiences.

c. Increasing or enhancing research and development.

	Goals		Actual Outcomes 2013-14	Accomplished Goal? Yes or No	Notes
	Projected 2013-14	2014-15			
# of Bachelor's degrees awarded in high-demand fields	0	55	0	N/A	
# of Master's degrees awarded in high-demand fields	0	0	0	N/A	
# of Doctoral degrees awarded in high-demand fields	0	4	0	N/A	
# of internships created (paid)	15	35	3	No	Programming launched - will increase promotion of programs to students and expand to other STEM disciplines. Companies had internships lined up prior to start of our program.
# of internships created (unpaid)					
# of cooperative work experiences (paid)					
# of cooperative work experiences (unpaid)					

Increasing or Enhancing Research and Development Reporting

Goals	Anticipated Completion Dates	Actual Completion Dates	Accomplished Goal? Yes or No	Notes

UW System Incentive Grant Program
Required Program Goals/Outcomes Reporting Matrix
2013-14

Improve the Affordability of Higher Education

Programs that Improve the Affordability of Higher Education for Resident Undergraduates, including:

a. Reducing the time required to obtain a degree
b. Increasing the opportunities available for high school pupils to earn credit toward a postsecondary degree; and
c. Improving the transfer of credit between institutions of higher education.

Reducing the Time required to obtain a Degree

Goals	Anticipated Completion Dates	Actual Completion Dates	Accomplished Goal? Yes or No	Notes
NEW: the Translational Grants have provided opportunities for several students to participate in undergraduate research	Ongoing	Jun-15	Yes	

Increasing the Opportunities available for High School Pupils to earn Credit toward a Postsecondary Degree

Goals	Anticipated Completion Dates	Actual Completion Dates	Accomplished Goal? Yes or No	Notes
NEW: two new initatives have been created with the Chemistry Center to link its resouces to high school students. A partnerhisp with the Watertown Endeavor Charter School has	Ongoing	Ongoing	Yes	

Improving the transfer of Credit between Institutions of Higher Education

Goals	Anticipated Completion Dates	Actual Completion Dates	Accomplished Goal? Yes or No	Notes