I. Major Objectives for FY17

Describe the unit’s most important objectives for FY17. Outline how these support the mission/goals of the Unit/Department/School, College and Educating Illinois.

The Center for Mathematics, Science, and Technology’s (CeMaST) three goals are aligned with Illinois State University’s strategic plan, Educating Illinois 2013-2018: Individualized Attention, Shared Aspirations. The ISU campus community is committed to the pursuit of learning and scholarship, individualized attention, diversity, integrity and civic engagement. CeMaST contributes to these core values by pursuing and supporting scholarship in science, technology, engineering, and mathematics (STEM) education for all students. In addition, CeMaST seeks to build on its stellar record of quality achievements in meeting the demand for leadership in curriculum, service, and research related to the integration of mathematics, science, and technology in education.

Goal 1. Stimulate and support activities and research on teaching and learning that aligns with campus, state, and national STEM priorities.

CeMaST pursues and supports the development of funded activities and research that promote the teaching and learning of science, technology, engineering, and mathematics. In addition, CeMaST strives to help shape campus STEM priorities by promoting the state and national STEM agenda to further educational innovation and research. This goal aligns with Educating Illinois 2013-2018 Goal 1: Illinois State University will provide a supportive and student-centered educational experience for high-achieving, diverse, and motivated students that promotes their success. In particular, Strategy 3 is consistent with this goal (“Increase opportunities for students to engage in high-quality, high-impact educational experiences by increasing professional development offerings designed to help faculty deliver high-quality educational experiences; by increasing partnerships across campus and with other educational, civic, and corporate entities that support student learning and development, and by increasing student participation in research.”

Goal 2. Provide leadership to and foster cross-disciplinary collaborative STEM activities and research on teaching and learning.

CeMaST strives to support connections between disciplines on campus as they pursue STEM activities and research. In addition, CeMaST fosters connections between all educational levels from K-12 through graduate school and between academia, industry, and professional societies. This goal aligns with Educating Illinois 2013-2018: Goal 3 “Illinois State University will foster an engaged community and enhance the University's outreach and partnerships both internally and externally.” Strategy 1 “Enhance cross-divisional and cross-departmental collaboration,” and Strategy 3 “Develop partnerships with business, educational, and government entities that provide learning, financial, and mutually-beneficial opportunities,” are consistent with this goal.
**Goal 3: Direct efforts to increase the diversity of STEM communities through innovative programming, partnerships, and outreach.**

CeMaST has a long history of pursuing projects that encourage and assist individuals within underrepresented groups in attaining excellence in STEM fields. CeMaST is committed to continuing these efforts. This goal aligns with Educating Illinois 2013-2018: Goal 1 “Provide a supportive and student-centered educational experience for high-achieving, diverse, and motivated students that promotes their success.” In particular, this goal is consistent with Strategy 1 “increase the diversity of the student population.”

**Program Objectives:**

**Objective B.1. Maintain the following activities:**

CeMaST activities continue to focus on three main areas which all cut across the three major CeMaST goals: Outreach, Integrated K12 STEM education, and Urban STEM-Ed.

**Outreach is an attempt to raise the profile of CeMaST as an important entity within Illinois State University that in turn is a major STEM active institution. (Aligns with Goals 1 & 2 with some Goal 3)**

- Retaining Dr. Amy Bloom as Assistant Director for Outreach (25% FTE), hosting the 16th annual ISU High School Research Symposium, organizing the 6th Illinois Summer Research Academy for high school students, supporting World Wide Day of Play and other community outreach events and workshops, and bringing the American Chemical Society (ACS) regional chemistry exam contest to ISU for the fourth time.

- Developing and facilitating new outreach activities and programs for the Children’s Discovery Museum (Normal, Illinois) and the Challenger Learning Center.

**Integrating K12 STEM education is aimed at helping drive the national discussion towards embracing the role of integrated education in K12 schools. CeMaST recognizes that modern problems are interdisciplinary and advocates for integrated solutions. Integrating STEM education in K12 schools is one way of achieving integrated solutions. (Aligns with Goals 1 & 2 with some Goal 3)**

- Supporting Dr. Brad Christensen and George Rutherford to lead this effort, attending national and regional meetings about STEM education, lobbying the state and federal government to include Integrated STEM education in new legislation, and supporting the Innovative Design Project to encourage students and faculty to work on the real problems of real people.

- Retaining Research Associate Dr. Brad Christensen (100% FTE) to conduct research and develop new integrated STEM curricula, organizing professional development and building new relationships with the publisher of the IMaST curriculum and exploring new models of advertising and selling the IMaST curriculum.

- Retaining one other Research Associate to support a variety of research and evaluation efforts. (40% FTE)
Urban STEM-Ed is an attempt to provide leadership at Illinois State in institutionalizing the efforts of the Chicago Teacher Pipeline within the STEM disciplines. It is also aimed at documenting (in the academic, research, and popular literature) the steps taken to become an urban serving institution in a non-urban environment. Due to the socioeconomic and under-represented nature of our urban population, this initiative particularly aligns with Goals 1 & 3.

- Supporting and leading parts of the Robert Noyce Teacher Scholarship program, the two NSF SSTEM scholarship programs, leading the NSF LSAMP program, and being integral with Teacher+PLUS and URBAN CENTER. It also involves taking leadership in developing a relationship with the Decatur Public Schools, the Peoria Public Schools, and the Chicago Public Schools.

Objective B.2. Sponsored Research and Projects

- Write new proposals with faculty at ISU and across Illinois
- Maintain and complete currently-funded grant projects

Objective B.3. Journals Project

- Continue to support the Journal of Technology Education and the Journal for Research in Mathematics Education.
- Publish the Journal of STEM Teacher Education in its 4th year.

Objective B.4. Research and Publications

- Continue to conduct original research and present and publish the results.

Operational Objectives

Objective C.1 Assessment Plan

- Implement the CeMaST Assessment Plan developed as part of the Center Review Process.
- Complete Quadrennial Accreditation with IBHE

Objective C.2 Revenue Stream

- Diversify our revenue streams by marketing existing curriculum, modifying existing curriculum, and writing new curriculum; we hope to generate revenue to support soft money positions.

Objective C.3 Diversify CeMaST Influence

- Increase in submissions for major external funding by CeMaST as a unit.
- Promotion of CeMaST through national and international exposure at meetings, conferences, federal agencies, advisory boards, program adoption and professional development.
o Increase in number of individuals (from national, state, and ISU campus) seeking out CeMaST to help them with grant writing, coordination, and evaluation.

o Increase the number of CeMaST Fellows and the development of interdisciplinary gatherings where CeMaST Fellows can interact and connect with ideas and potential interdisciplinary funding.

o Continued coordination, development, and participation with ongoing CeMaST and campus funding.

o Develop innovative integrated STEM projects modeled after our success with the ISU SMART Clinic and Innovative Design Project. Consolidate support for a campus wide MakerSpace in either a centralized model or de-centralized model.

o Develop the Energy Learning Exchange and the R&D Learning Exchange

II. Permanent Funding Requests

Any initiative that would require permanent funding, currently not a source of funds available through the Office of the Provost, should be outlined in this section. A detailed explanation of the need and budget rationale should be provided. Requests for permanent funds should not be included in the Provost Enhancement Requests.

Program Enhancement Requests: Operating Funds

None.

Personnel Requests: Faculty, Staff, Graduate Assistants program growth

None.

I. Strategic Budgeted Carryover (SBC) Requests ONLY (PERS 937 spreadsheet)

List, in priority order, SBC requests in the PERS 937 – SBC Only tab. It is recommended you attend the Strategic Budgeted Carryover training and review the SBC documents before completing the spreadsheet. Access and save the PERS 937 spreadsheet to the Budget Docs Drive: FINAL Folder.

none
II. Provost Enhancement Requests and Strategic Budgeted Carryover (PERS 937 spreadsheet)
List, in priority order, PE & PE + Strategic Budgeted Carryover in the PERS 937 – PE & PE + SBC tab.

Outreach Events

For each of the past five years we have spent approximately $2000 on these outreach events.

1. Illinois Summer Research Academy (ISRA)

   ISRA (http://cemast.illinoisstate.edu/students/high-school/summer-academy/) is entering its fifth year as a one-week summer residential research experience for high school sophomores and juniors. The goal is to bring excellent STEM students to campus before they have made their college attendance decision and influence them into choosing ISU. Over the past several years we have had 40 students pay $500 each for the week. With each year both the interest by ISU faculty members in mentoring the high school students and the number of high student applications has grown. CeMaST has provided about $2000 extra to cover the cost of supervision during the week, advertising, research expenses, and scholarships. Participating ISU departments and programs include Mathematics, Chemistry, Biological Sciences, Physics, Arts Technology, Geology-Geography, Communications Sciences and Disorders, Information Technology, Psychology, and Criminal Justice. For some students we have been able to offer further need-based scholarships beyond this subsidy. Having the Provost’s support would allow us to provide scholarships to up to 8 more students.

Request: $2,000
2. High School Research Symposium (HSRS)

CeMaST has organized the ISU HSRS (http://cemast.illinoisstate.edu/students/high-school/research/index.shtml) for the past four years and we are well-established as an excellent event for outstanding high school research students to share their work. We have grown to about 250 students from across central and northern Illinois and Chicago attending each year. CeMaST has been supporting HSRS with about $1000 of variance money for the past five years. The goal is to bring excellent STEM students to campus before they have made their college attendance decision and influence them into choosing ISU. Participating ISU departments and programs include Mathematics, Chemistry, Biological Sciences, Physics, LSAMP, Robert Noyce Teacher Scholarship awardees, Geology-Geography, and Psychology. However, as school budgets have become tighter, teachers have a more difficult time arranging buses to bring their students to the event. Having the Provost’s support for student transportation and facilities costs would allow up to 100 more students to attend.

Request: $1,000
III. Personnel Requests: Tenure Track Faculty-NEW (PERS 936a spreadsheet)
Based on an assessment of current and projected needs, provide your prioritized requests for tenure track faculty using the PERS 936a forms. It should be noted that all Tenure Track requests should be based on a 9-month contract as limited by AIF. Access and save the PERS 936 spreadsheet to the Budget Docs Drive: FINAL Folder.

None

IV. Personnel Requests: Tenure Track Faculty- Non-reappointment or tenure-denial/death (PERS 936b spreadsheet)

None

V. Facilities Requests
Academic Construction Project Initiation Forms should be submitted through the appropriate Dean to the Provost by December 15th. All Academic Construction Projects that request Provost Funds will be considered as a part of the Provost Enhancement process and should be included with the PERS 937 requests.

We are housed in the Campus Religious Center where we have five offices and share two meeting spaces. We are currently using all our allocated space and do not foresee needing additional space in the near future. We have used various classrooms and space on campus for our outreach activities. If however, we continue to successfully obtain external grant funding, we may have fluctuating space needs.