



Iowa STEM Advisory Council Request For Proposals CAPS Programs

Background

Executive Order Number 74 signed by Iowa Governor Terry E. Branstad on July 26, 2011, declared that science, technology, engineering and mathematics (STEM) education should be strengthened as part of providing a world-class education, encouraging innovation and enhancing economic development in Iowa. The Advisory Council's priorities for FY2015 include establishing innovative, replicable Iowa models of school-business partnerships of the Center for Advanced Professional Studies (CAPS) out of Blue Valley School District in Overland Park, KS.

The Iowa Governor's STEM Advisory Council has designated a portion of the state legislative funding to promote CAPS-like programs, with the goal of uniting the expertise of public and private sectors to strengthen the continuum from school to careers. The number of proposals accepted will depend upon available funds and proposal requests.

I. Introduction

Developed in the Blue Valley School District in Overland Park, KS, the Blue Valley CAPS (BVCAPS) program is a "nationally recognized, innovative high school program" created in partnership with business, business mentors, leading universities, and education experts. Students become fully immersed in a professional, innovative and entrepreneurial culture, solving real world problems using industry standard tools and are mentored by real employers. The CAPS model "is an example of how business, community and education can partner to produce personalized learning experiences that educate the needed workforce of tomorrow, especially in high skill, high demand jobs". Learning is student driven using problems and challenges of business; teachers facilitate the learning process through problem-based projects comprised of authentic and relevant work assignments. More information about the BVCAPS program can be found [here](#). **Additional models based on various financial resources and workforce needs can be found in Appendix D.**

A subcommittee of the STEM Council has studied various school models across the country. While there is no single recommended format for all Iowa STEM education, the Advisory Council supports a model characterized by specific criteria. The Iowa STEM CAPS model will foster a consistent approach to STEM education, yet allow for the organic development of STEM programs matching local strengths, challenges and resources.

Three Key Attributes of Iowa STEM CAPS Model

- **Business and Industry-led Education**
 - ✓ *Real-world industry-led and student-centered projects that connect students to industry knowledge base*
 - ✓ *Relevant experiences driven by local business need*
 - ✓ *Ideally regional school district clusters collaborate with business and industry to maximize opportunities for students in a cost-effective model*

- **Rigorous, Relevant and Dynamic STEM Curriculum**
 - ✓ *Mastery of Iowa Core demonstrated through a competency based approach*
 - ✓ *Instructional strategies foster creativity, innovation, and the “entrepreneurial mindset” through a collaborative, interdisciplinary problem based approach*
 - ✓ *Driven by 21st Century Skills informed by current and future workforce needs*
 - ✓ *Accounts for all learners, especially underrepresented populations*

- **Authentic Partnerships**
 - ✓ *STEM businesses and organizations*
 - ✓ *Government agencies*
 - ✓ *Educational institutions*

Top quality proposals will describe a cohesive plan that attends to the three key attributes of Iowa STEM CAPS Model, including:

- Plan for the development of a rigorous and relevant STEM curriculum. **(Appendix A)**
- Organized, well-represented partnership team demonstrating a sustained commitment to the program through various levels of engagement **(Appendix B)**
- A plan for professional development utilizing business professionals as well as educational institutions **(Appendix C)**
- Description of CAPS alignment to current and future district goals related to STEM
- Financial Model
- Evidence of Effectiveness

II. Eligibility

All Iowa private and public school districts and buildings serving students in any of grades 9 through 12 are eligible to apply.

III. Timeframes and Selection Process

July 2014:	Request For Proposal Release
August 2014:	Webinar for Potential Applicants
	Details will be announced at www.iowaSTEM.gov on August 1.
October 15, 2014:	Proposal Due Date
October - November	Proposal Review
	All proposals submitted in accordance with this RFP will be reviewed by a Selection Committee appointed by the Governor's STEM Advisory Council. The committee will recommend finalists for potential site visits by November 15, 2014. (Selection committee may conduct site visits. To be determined.)
December 1, 2014:	Award Recipients Announced
	The Advisory Council will determine final awardees based upon the recommendation of the Selection Committee. The recipients will be rated according to the criteria described in this document.
Winter-Spring, 2015:	Program Planning
Spring or Fall 2015:	Program Implementation (All funds are to be expended by June 30, 2015)
Spring/Summer 2016:	Self Assessment and Evaluation

IV. Funding

The Iowa Governor's STEM Advisory Council will provide funding support in the following areas, **All funds must be expended in FY2015 (by June 30, 2015).**

- ✓ **CAPS Grants ~ \$5,000 up to \$50,000**
 - **Curriculum Development**
 - *Project proposal may also include costs for curriculum development working closely with business and industry partners.*
 - **District Team Site Visits**
 - *Proposal may include travel expenses for district teams or designees to visit one or more exemplary CAPS school model(s) to benchmark and research key criteria.*
 - **Participation in Blue Valley CAPS Summer Huddle or similar program**
 - **Needs Assessment**
 - *Community surveys of students, parents, business and industry*
 - **Direct and Indirect Costs**
 - *Technology, liability and insurance*
 - **Professional Development (PD) for STEM teachers and partners**

- *Proposal may include costs to provide training in collaborating with business professional partners, in the use of project-based learning, career education and STEM professional development.*
- **Coordinator/Business Development Support**
 - *Project coordinator, staffing.*
- **Direct and Indirect Costs**
 - *Technology, liability and insurance*
- ✓ **Other unforeseen costs may be allowed subject to approval**

V. Proposal Content Requirements

Format

Page Limit: See below

Single Spaced with 1-inch margins

Proposal Components:

- ✓ Each participating district:
 - Cover Form (with Superintendent's signature) **Appendix F**
 - Community, district and school demographics (1 page)
 - Description of current STEM education opportunities in school or district (1 page)
- ✓ Evidence of plan to implement elements #1-6 as described below (12 pages)
- ✓ Statement of cluster/district/school goal or vision at completion of Proposal implementation (Spring or fall, 2015) (1 page)
- ✓ Specific Support Letters defining the role of ... (not included in 10 page count)
 - ___ Three Area Business partners
 - ___ Economic or Workforce Development partner
 - ___ District Superintendent(s)
 - ___ Other relevant contributors: Intermediaries, Facilitators, Higher Education partner, etc.

VI. Proposal Elements

1.	STEM Curriculum: Proposal demonstrates plans to create and implement an integrated business and industry driven STEM curriculum, aligned to Iowa Core, with a focus on personalized, deeper learning to students in any of grades nine through twelve. Curriculum proposal includes strategies to serve underrepresented populations in STEM. See Appendix A for specific descriptions of a STEM curriculum.
2.	Community Partnerships: Proposal provides evidence (including letters of commitment) of strong partnerships and collaboration with

	<p>a) Public and Private Sector Business and Industry Partner(s), b) Economic and Workforce Development Groups, and c) Higher Education Partner(s)-Specifically Community College Intermediaries, d) Other relevant contributors: Intermediaries, Higher education, etc.</p> <p>Commitment letters clearly discuss the role(s) each partner will play. See Appendix B for specific descriptions of community partnerships.</p>
3.	<p>Professional Development: Documentation of staff training plan, which includes commitment to engage business and education professionals in collaborative curricular and pedagogical approaches utilizing specific training in project-based learning. See Appendix C for descriptions of professional development.</p>
4.	<p>Sustainability Plan: Proposal discusses CAPS alignment to current district goals and improvement efforts. Proposer should also include information about school district(s) demographics, student enrollment and demographic targets for the CAPS program, and program leadership structure. Detail continuation of the program beyond the grant period, including willingness to function as a model for others.</p>
5.	<p>Financial Model: Proposal includes detailed budget including assurances that the school has received commitments of sustained and verifiable fiscal and in-kind support from regional education and business entities. Plan should include information aligned to allowable expenses as outlined in Part IV. Additionally, proposal should discuss how critical the funding is for program implementation and sustainability.</p>
6.	<p>Self Evaluation: Proposer is responsible for evaluation in consultation with the Council. Final award recipients will:</p> <ul style="list-style-type: none"> ● Manage project outcomes and deliverables with the support of the Advisory Council throughout the program period. ● Execute ongoing monitoring of the project implementation and work with the Governor’s STEM Advisory Council. ● Collect observational and qualitative data, through such data collection activities as site visits, classroom observations, administrator and faculty interviews and student and parent focus groups. ● Provide administrative data which may include but is not limited to the following: <ul style="list-style-type: none"> ○ Student Targets <ul style="list-style-type: none"> ▪ Professional Skills ▪ Attendance ▪ Client feedback ▪ Number of internships ▪ Feedback from internship sponsors ○ Operational Targets <ul style="list-style-type: none"> ▪ Enrollment

	<ul style="list-style-type: none"> ▪ Number of mentors and business partners ▪ Curriculum ▪ Budget ○ Customer Satisfaction Targets <ul style="list-style-type: none"> ▪ Students ▪ Parents ▪ Business partners ▪ Teachers ▪ Administrators and Counselors ▪ Business Partners/Mentors ▪ Other stakeholders and partners including Higher Education ○ School system impact targets <ul style="list-style-type: none"> ▪ Instructional changes ▪ Curriculum ▪ Assessments ▪ Attendance ▪ Student achievement ○ Business and community impact
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APPENDIX A: Curriculum

Iowa STEM CAPS programs will inspire innovative, lifelong learners within interdisciplinary environments, stimulating constructive connections between their life and the real world. A robust STEM curriculum that is both relevant and dynamic and focused on personalized, deeper learning will include

- Mastery of STEM focused, business-driven academic curriculum, including integration into Iowa Core subjects
- Self-directed Learning and Competency Based Education Pathways¹
- Reformed Instructional Strategies and Project Based Learning
- Focus on the Universal Constructs²:
 - Critical Thinking
 - Complex Communication
 - Creativity
 - Collaboration

¹ [STEM Learner Readiness for Post-Secondary and Career Committee](#), prepared for Advisory Council, 2011.

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² http://educateiowa.gov/index.php?option=com_content&view=article&id=2089

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- Flexibility and Adaptability
- Productivity and Accountability
- Authentic Assessment
- Career and post-secondary Readiness as key outcome

Successful models of CAPS engage business, economic and workforce development, and higher education in curriculum development through a process called rapid prototyping. This process, based off of standard industry practice, allows for multiple, quick iterations to address changing local needs. Curriculum development via rapid prototyping as well as academic strands (engineering, healthcare, entrepreneurship, etc.) provides an opportunity for public and private sector partners to engage with students through mentorship, projects, speakers, instructors, and internships.

Overall, successful CAPS curriculum must be business-driven, academically rigorous, inquiry and problem-based, real-world, competency-based and incorporate academic and career-related knowledge and skills.

APPENDIX B: Community Based Partnerships

The challenges faced by today's schools are numerous and complex. Effective partnerships are a proven solution to these mounting challenges and can bring relevance and rigor to students' learning environments. In order for partnerships to be successful, all stakeholders must be focused and committed. All partners must be willing to invest the time, energy and resources to learn about each other's needs, to understand the issues, and to build a trusting relationship. Partners must be willing to commit to long-term engagement and advocate for the collaboration and its desired outcomes yet be flexible to optimize efficacy.

Partners

State-wide intermediary contacts. Available [here](#).

Higher Education

Extension

Economic Development

Regional Workforce Development

Chamber of Commerce

Assistance and Aid

Regional STEM Network Managers. See <http://www.iowastem.gov/hubs/>

Local and Regional Business Partners

As the U.S. Chamber of Commerce's Institute for a Competitive Workforce states, "The business community is the number one consumer of the public education system and therefore must be

involved and engaged stakeholder in the education of America’s children.” Businesses success depends on a well-educated and adaptable pool of young talent emerging from America’s high schools and colleges to maintain stability and growth. The resources, skills, and knowledge businesses and their employees bring to the table have broad significance for ensuring young adults reach their full potential. As it might be expected, there is no single framework for a school-business partnership. Partnerships between education and the business community can:

- Provide work-based learning experiences that transfer knowledge and skills between the classroom and the work setting
- Help schools build career cultures that empower students
- Help educators align curriculum to business needs
- Build meaningful relationships with mentors
- Provide tours, speakers and facilities
- Provide funding and equipment for classrooms and workspaces

Iowa CAPS schools are non-classroom based in order to build meaningful partnerships with community business partners as a mechanism to ensure career and college readiness for all of Iowa’s young people. One measure of success will be an increase in the number of Iowa students who can demonstrate their qualifications on the National Career Readiness Certification³ exam. In collaboration with the Iowa Workforce Development, the Skilled Iowa initiative seeks to promote the NCRC as an “industry-recognized, portable, evidence-based credential that certifies essential skills needed for workplace success”.⁴

Economic and Workforce Development Partners

A compelling body of research links primary and secondary education to economic development and growth. The foundation of CAPS programs is the connection between K-12 education and local economic and workforce needs. Successful implementation requires districts to identify local workforce needs as a driving force for curriculum, course strands offered, program focus, etc. As workforce needs change, districts must continue to evaluate their programs to reflect these trends.

School District Clusters

To provide students with experiences and opportunities that are sustainable, school districts are encouraged to investigate a shared CAPS program (Cluster/Hub). An example of this is the [Northland CAPS](#) program in Missouri which is a partnership of six school districts (Kearney, Liberty, North Kansas City, Park Hill, Platte County and Smithville). Collaboration across school districts fosters the sharing of best practices and a team approach to student achievement while at the same time maximizing business and community resources.

³ <http://skillediowa.org/>

⁴ [Skilled Iowa Report](#), 2012, Iowa Workforce Development in Partnership with ACT.

APPENDIX C: Professional Development

The essential characteristic of professional development for CAPS is the engagement of business and industry professionals and educators. It has been shown that educator effectiveness improves outcomes for students. High quality professional development is needed to address the unique nature of CAPS-like programs. Instructors need to engage in industry-based learning opportunities that allow them to see workplace skills that can be integrated into real-world problems coursework.

APPENDIX D: Resources

Additional CAPS Models
Northland CAPS http://www.northlandcaps.org/s/1625/start.aspx
Waukee CAPS http://www.waukeecaps.org/
Park City, UT CAPS http://caps.pcschools.us/
Minnetonka CAPS http://minnetonka.k12.mn.us/vantage

Additional Resources
P-TECH High School in New York City is garnering national attention as a model partnership between business, K-12 and Higher Ed. The Iowa site visit report highlights of team learning.
“ STEM Pathways to College and Career Schools. A Development Guide ” is intended to help education leaders at the school and college levels, and business leaders in IT and other sectors, get started on the collaborative process of designing and building a STEM Pathways to College and Careers school (STEM-PCC school).
The Arizona Science Foundation STEM Network created The STEM Immersion Guide , which “offers a roadmap to establish project-based STEM instruction, leadership development and community support. It was created to provide practical direction that can empower teachers and administrators, schools and districts.”
Business Engagement http://blogs.edweek.org/edweek/marketplace12/Business%20Engagement%20in%20Education%20FINAL.pdf
http://www.project10.info/files/School-BusinessGuidingPrinciples.pdf

APPENDIX E: PROPOSAL SCORING RUBRIC

Criteria	Top Score	Comments
<p>1) STEM Curriculum: Proposal contains evidence that the CAPS program will offer a robust, integrated STEM curriculum with a focus on personalized, deeper learning to students in any of grades nine through twelve, especially inclusive of students underrepresented in STEM (females, students of ethnic or racial minority groups, and students with disabilities).</p> <p>The following key components are addressed:</p> <ul style="list-style-type: none"> ✓ <i>Driven by 21st Century Skills informed by business and industry current and future workforce needs</i> ✓ <i>Mastery of Iowa Core demonstrated through a competency based approach</i> ✓ <i>Instructional strategies foster creativity, innovation, and the “entrepreneurial mindset” through a collaborative, interdisciplinary problem based approach</i> <p><i>Reviewers will consider exemplary deployment of key components with a clear link to their connection with innovation and economic interest in the local area, as described in Appendix A.</i></p>	25 pts	
<p>2) Community Partnerships: Proposal provides evidence (including letters of commitment) of strong partnerships and collaboration that include all of the following</p> <ol style="list-style-type: none"> a) Three or more Public and Private Sector Business Partners, b) Economic and Workforce Development Groups, c) A physical location amenable to ready access to business and industry professionals and facilities, and d) Other partnerships, e.g., higher education. 	25 pts	

<p><i>Reviewers will look for genuine partnerships inclusive of key stakeholders. Evidence of enthusiastic community, business, and Higher Ed commitment should be demonstrated through letters defining specific, ongoing roles.</i></p> <p><i>The partnerships should include involvement in curriculum development and instructional design including business-sponsored projects, mentoring, accelerated learning opportunities, etc. as described in Appendix B.</i></p>		
<p>3) Financial Model: Detailed Budget and assurances that the school has received commitments of sustained and verifiable fiscal and in-kind support from regional education and business entities. Budgeted from award date October, 2014 to June 30, 2015.</p> <p><i>Rubric score will also factor in amount and type of in-kind and financial support from regional industry and educational partners.</i></p>	15 pts	
<p>4) Sustainability Plan: Proposal clearly aligns CAPS program to district goals and demonstrates commitment to serve underrepresented populations, beyond duration of funding.</p>	15 pts	
<p>4) Professional Development: Documentation of staff training plan, which engages business professionals and educators in specific training in the implementation of CAPS-like programs</p> <p><i>Top points awarded for proposals which include evidence of strong business-educator engagement and commitment to an integrated STEM curriculum as described in Appendix A.</i></p>	10 pts	
<p>5) Self Evaluation: Proposal ensures a competent, comprehensive internal program evaluation, both qualitative and quantitative, in cooperation with Council.</p> <p><i>Top points awarded to proposals that give clear assurance of</i></p>	10 pts	

<i>capacity and expertise to evaluate, in cooperation with the STEM Advisory Council.</i>		
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APPENDIX F: COVER FORM

School or District _____

District Superintendent _____

Project Director _____

Contact Information

Address: _____

Phone: _____

Email: _____

Statements (to be initialed by District Superintendent)

_____ I agree to a Selection Committee site visit as a possible component of the Review Process. Members of the selection committee may opt to conduct site tours, interview relevant school and community leaders, and observe brief proposal presentations by students and staff.

_____ If selected, the school agrees to conduct, in consultation with the STEM Council, a thorough evaluation throughout the term of the program. The evaluation will include the collection and analysis of both quantitative and qualitative data.

Items Included in Proposal:

- ___ Cover Form
- ___ Proposal (limit ___ pages in length)
- ___ Additional Supporting Documents

Please address questions to

CAPS Taskforce Chair and Southeast Regional Manager Kristine Bullock at **Kristine-Bullock@uiowa.edu**

or

STEM Council Executive Director Jeff Weld at **Weld@iowastem.gov**

Return by October 15, 2014, 5:00pm (electronic submission allowed) to

Executive Director Jeff Weld, PhD.

Iowa Governor's STEM Advisory Council

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