2020 Initiatives Proposal Form

Thank you for your interest in submitting a proposal to the 2020 Initiatives process.

Please complete this form, save it to your hard drive, and email a copy to W
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contacted by the appropriate 2020 Initiative Team representative. ^ ( ] o] š š } Œ •.

Proposals will be evaluated based on general criteria including the following:

- h v] À Œ •] š Ç r wide impact
- Clearly addressing one of the four LEGS themes from the 2020 strategic plan
- Specific budget details provided
- Realistic outcomes identified
- Assessment measures specified

Please consider the following

Kimberly Lebak

Strategic Theme (choose one)	
4	Learning
	Engagement
	Global Perspectives
	Sustainability

Strategic Objectives: choose one p rimary (P) in main theme and up to th ree seconda ry (S) In any themes			
Learning			
P	Deliver high value-added learning experiences and promote scholarly activity (S1)	-	Reward scholarly applications (ER2)
-	Promote liberal arts ideal to develop lifelong learners (S2)	S	Establish additional revenue sources (RS1-L)

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The tables below allow for summaries of about 350 words. Additional information can be included as an attachment.

Narrative Summary of Project

See attached.

Assessment Plan: What are your anticipated outcomes and specific measurements for success?

See attached.

Budget Summary						
	Item	FY2019 July 1, 2018 – June 30, 2019	FY2020 July 1, 2019 – June 30, 2020	FY2021 July 1, 2020 – June 30, 2021	FY2022 July 1, 2021 – June 30, 2022	Notes/Comments (stipends, supplies, hospitality, etc.)
1.						
2.						
3.		$ 150.00	$ 150.00			
4.	Materials for Laboratory Classrooms for Model Lessons		$ 800.00			
5.	In-Kind Contribution by Somers Point District					4500.00 (Substitutes provided for professional developmen
6.						
7.						
	Total	$ 5,550.00	$ 3,200.00	$ 0.00		

No

SOE

Introduction

Th ‰ Œ } primš[objective is to deliver high value added learning experiences and promote scholarly activity (S1) to multiple layers of community stakeholders including Stockton faculty members from NAMS and EDUC, Stockton preservice teachers, K-8th grade community teachers, and 8K grade community students. Initially, NAMS and EDUC faculty members will provide high value learning experiences to K-8 community science teachers through professional development on science content and pedagogical approaches and instructional coaching. As K-8th grade teachers develop a stronger capacity to offer rigorous science instruction, their own students will directly benefit through the higher quality science learning experiences delivered by their teachers. This project will further provide high value learning experiences to all Stockton University preservice teachers working towards their elementary certification. As part of this project, the Stockton University Clinical Practice II course meetings, required of all Stockton preservice teachers, will be reformatted to incorporate observations, reflections, and co-teaching opportunities in laboratory classrooms at Somers Point. The use of laboratory classrooms will further allow for a space for research by Stockton faculty members, Somers Point teachers, and Stockton preservice teachers on implementing innovative instructional practices to meet the rigorous standards. A secondary objective of this project is to establish additional revenue sources (RS1-L). Data will be collected and analyzed on 8th-K grade student achievement, preservice and inservice teaching effectiveness, and changes in preservice and inservice perceptions of science instruction. Data will used to apply for outside grant funding.

In addition, this project will support two secondary objectives in the theme of engagement, as this project will work to bring together multiple layers of stakeholders in the immediate and greater Stockton community. Specifically, objectives of this project are to increase opportunities for interactions between internal and external communities (ER4) as Stockton University will partner with Somers Point School District and to foster an interactive environment among students, faculty, staff, and community (ER3) though the purposeful partnership of the different levels of learners.

Rationale of the Project

Nationwide, preparing high-quality elementary science teachers is an area of concern and one of the major foci of science education reforms (NGSS Lead States, 2013). Despite calls and systemic reform initiatives to improve science teaching in elementary classrooms, recent surveys of elementary teachers suggest that relatively few (33 %) feel prepared to teach science (Banilower et al., 2013; Trigstad, Smith, Banilower, & Nelson, 2013) in comparison to the majority of respondents (76%) who felt prepared to teach reading/language arts and math. Recently, the challenges of teaching science in elementary classrooms have been heightened in New Jersey classrooms. In 2016, New Jersey adopted the Next Generation Science Standards (NGSS) as the New Jersey Student Learning Standards. The NGSS increase the academic rigor for all students, requiring they apply science and engineering practices and crosscutting concepts across core disciplinary ideas. The NGSS differs from traditional science standards through the integration of the three dimensions at a much higher level of complexity. For example, in middle school a Next Generation Science Standard in physical science asks students to apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer (Next Generation Science Standard MS-PS Energy). While in past science standards, middle school students were asked to define types of energy and describe energy transfer, students must now use the science practices of designing, constructing, and testing to create a device of their choosing that

Data collected and analyzed during this project will include standardized test scores from elementary school students, scores from videos of preservice and inservice teachers' science lessons, survey data from preservice and inservice teachers, and field notes.

Specifically, to answer research question number one, the results of The New Jersey Student Learning Assessment for Science (NJSLA-S) will be used to compare progress of elementary students from the academic years 2018, 2019, and 2020. The NJSLA-S examines s • š µ v š • [‰ Œ (} Œ u v } (•] v š] ( ] engineering practices in the context of crosscutting concepts and disciplinary core ideas. The three dimensional nature of the standards requires more complex assessment items and tasks that are reflected in the NJSLA-S. Each year, the New Jersey Department of Education provides student results on the NJSLA-S. This data will be analyzed by the research team to determine changes in student progress from year to year.

To answer research question number two, Z v P •] v š Z ((š] À v practice of science Z Œ • [lessons will be determined and survey data from participants will be analyzed. To measure change in teacher practice, science lessons of both preservice and inservice teachers will be videoed before and after the professional development workshops and instructional coaching. The Reformed Teaching Observation Protocol (RTOP), a valid research instrument, will be used to measure change. The RTOP was developed as an observation instrument to provide a standardized means for detecting the degree to which K-20 classroom instruction in science is reformed by the national science standards. Graduate assistants will be trained on the RTOP and will score all of the videos. The pre/post scores will be compared using -tests to determine change in science practice. A survey regarding change in both

March, 2019 – Faculty members from SOE (Lebak, Culleny) will provide professional development workshop on creating and implementing curriculum units that align to NGSS. Participants will use their existing curriculum materials to redesign lessons that integrate the three dimensions. (Professional Development Presenters Costs: 90.00 x 5 hours = 450.00)

April-May, 2019 – Faculty members from SOE (Lebak, Culleny) will provide instructional coaching on creating lessons and implementing NGSS in the classroom. (45.00 x 40 hours of coaching= 1800.00)

May, 2019 – Faculty from NAMS (Luke, Trout) will provide professional development workshops on [illegible] physical science. (Presenters Costs: 90.00 x 10 hours = 900.00; 150.00 in consumable supplies)

Phase 2 – Redesign the Clinical Practice II Course for Stockton Preservice Teachers

Summer, 2019 – School of Education faculty and Somers Point administrators and teachers will work to redesign the Clinical Practice II syllabi to incorporate the laboratory classrooms.

Phase 3 – Create and Implement Laboratory Classrooms at Somers Point

September – November, 2019 – Faculty members (SOE (Lebak, Culleny) and NAMS(Luke, Trout) will work with Somers Point science teachers to create eight laboratory classrooms in which model lessons will be developed focused upon specific disciplinary core ideas. (90.00 x 10 hours= 900.00 Professional Development – 2 days followed by 45.00 x 30 hours of coaching to set up classrooms; Consumable science supplies for 5th – 8th grade individual lessons: 800.00; each grade level will be allotted 200.00 to buy supplies for 5th – 8th grade students to complete the lessons)

November, 2019 – Pilot one elementary methods class to Somers Point and visit to laboratory classrooms. CPII faculty members will serve as facilitators to manage questions, ideas, and reflections. Elementary students will teach and video a science lesson in their own fieldwork experiences.

During Spring, 2020 – Fall, 2020 we will implement the full laboratory model partnership. Specific assignments in the Elementary CP II course will be aligned to classroom laboratory observations. Faculty members teaching Elementary CP II will meet students at Somers Point for greater integration between Somers Point and Stockton. Communities of research will study the impact of specific pedagogical strategies implemented in the classroom.

Resources

Banilower, E. R., Smith, P. S., Weiss, I. R., Malzahn, K. A., Campbell, K. M., & Weis, A. M. (2013). *Report of the 2012 national survey of science and mathematics education*. Chapel Hill, NC: Horizon Research, Inc.

Cucchiara, M. (2010). *New goals, familiar challenges?: A brief history of university schools*.

Loukomies, A., Petersen, N., & Lavonen, J. (2018). A Finnish model of teacher education in South African one. A teaching schools as a pedagogical laboratory. *South African Journal of Childhood Education*, 8(1).

NGSS Lead States. (2013). Next generation science standards: For states, by states. Washington, DC; National Academies Press.

Pratt, H (2014). Implementing NGSS crosscutting concepts: Opportunities for elementary teacher contributions. Science and Children, 52(2) 8-11.

Smith, J. & Nadelson, L. (2017). Finding alignment: The perceptions and integration of the Next Generation Science Standards Pcienstht5ticr e, b(m)6l3(e)9(m)-4(entar)12(y)-3(-h)3(e)(ea(h)3rs).)] TJ ET

APPENDIX A - SURVEY EXAMPLE

What grade level do you teach?

How often did you teach science last year (PULL DOWN MENU)

What domains in science did you teach last year?

- physical sciences
- life sciences
- earth and space sciences
- engineering, technology and applications of science.

Approximately what percentage of your lessons were

- Physical science lessons?
- Life science lessons?
- Earth and space science lessons?
- Engineering, technology and applications of science lessons

How often did your students last year.… (PROVIDE A NUMBER OF TIMES)

Generate questions or predictions to explore

Identify questions from observations of phenomena

Engage in inquiry activity that explores a scientific concept using a hands-on approach

Design or implement their OWN investigations

Closely observe an object, phenomenon, or their surroundings

Gather quantitative or qualitative data

Organize data into charts or graphs

Analyze relationships using charts, graphs, or calculations to draw conclusions

Write about what was observed and why it happened

Present procedures, data and conclusions to the class (either informally or formal presentations)

Read from a science textbook or other handouts in class

Critically synthesize information from different sources (text, or media)

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Develop a conceptual model based on data or observations (model is not provided by textbook or teacher)

Use models to predict outcomes