Editorial

Dear Readers,

We wish you a very happy and prosperous 2019!

We would like to welcome you to our newest edition, Volume 19: Issue 5. In this edition, we will continue to explore ways to improve the field of STEM education on a variety of stages: from the introduction of innovative, new STEM programs in the classroom to the restructuring of current educational programs to equalize student success.

To begin, authors Kathleen A. Jeffery, Samantha Marie Frawley Cass, Ryan David Sweeder complete a study that examines differences in the ability of undergraduate students taught in lecture-based or context-based general chemistry courses to describe reaction kinetics. Their observation of the increased effect of the use of context-based courses can be read in, "Comparison of students' readily accessible knowledge of reaction kinetics in lecture- and context-based courses."

Authors Dazhi Yang, Dianxiang Xu, Jyh-haw Yeh, and Yibo Fan examine the results of their study which reported a three-year, nine-week REU Site program in cybersecurity designed for underrepresented students (women and minorities) and participants from institutions with limited research opportunities. Their results, which showed that most participants enjoyed the opportunity to work on a real-world project and to gain research experience in the REU program, can be reviewed in their article, "Undergraduate Research Experience in Cybersecurity for Underrepresented Students and Students with Limited Research Opportunities."

Our next article, "How Calculus Eligibility and At-Risk Status Impact Graduation Rate in Engineering Degree Programs," shifts to discussing graduation rate impact factors by Authors Bradley Bowen, Jesse Wilkins, and Jeremy Ernst. described the details of their study, which examines explicitly engineering degree completion of calculus eligible students compared to non-eligible calculus students upon acceptance into a College of Engineering as a first-semester freshman. They also discuss the mediating effects of being at-risk for nonmatriculation on this relationship.

Authors Greg Joseph Strimel, Eunhye Kim, Lisa Bosman, and Samarth Gupta propose that secondary engineering teachers can employ established entrepreneurial pedagogical interventions as a means to promote more authentic engineering design activities in STEM learning environments. Additionally, these interventions can aid students in making more informed design decisions, engage students in developing viable solutions to authentic problems while investigating opportunities for exploiting their ideas, and thus, support the innovation capabilities of our future. More details about their theory are explored in their article, "Informed Design through the Integration of Entrepreneurial Thinking in Secondary Engineering Programs."

Next, Michael Lecocke, Jason Shaw, Ian Martines, Paulina Cano, Vanessa Tobares, Necia Wolff describe the results of The St. Mary's University Jump Start program for precalculus. The program was implemented for the first time in August 2014 with the aim of helping incoming freshmen STEM majors start their degree programs on track. More details about the program are explored in "Jump Start: Lessons Learned From A Mathematics Bridge Program, For Stem Undergraduates."

St. Olaf College recently restructured its Summer Bridge Program (SBP) course for incoming low-income (LI) and first-generation (FG) college students from a non-majors' biology course, "Issues in Biology," to an interdisciplinary "Explorations in Science" course. Authors Michael Crane Swift, Lisa Bowers, Eric McDonald, and Anne Walter detail the results from this change in "An Explorations Approach to Summer Bridge at a Selective Liberal Arts College: One Path Toward Equalizing Student Success."

Finally, Ragina Yolanda Taylor reviews Dr. Myint Swe Khine's "Robotics in STEM education: Redesigning the learning experience."
In closing, I invite you to share any comments by telephone or via email at jstemed@gmail.com. In addition, I would invite you to consider our journal for publishing your research pertaining to the STEM field, feel free to submit manuscripts at jstem.org.

We hope you enjoy this edition!

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