Journal of STEM Education: Innovations and Research

Volume 21 · Issue 1 · January-May 2020

Editorial Review Board	2
International Editorial Advisory Board	3
Editorial	4
FEATURES	
Differences in Outcomes by Gender for Peer Mentors Participating in a STEM Persistence Program for First-Year Students Dean T. Spaulding, Jelane A. Kennedy, Amanda Rózsavölgyi and Wilfredo Colón	5
Corporate Internships, Undergraduate Research, and Finances: Successful African American Engineers' Consideration of Immediate Workforce Entry or Graduate School Christopher B. Newman	11
Data Science Outreach Educational Program for High School Students Focused in Agriculture Jasmine Sami, Krystin Sinclair, Zachary Stein and Larry Medsker	18
Factors Influencing Cooperative and Competitive Decisions in STEM Courses Martiqua L. Post, Katherine Bates and Lauren Scharff	34
Designing An Interdisciplinary Field And Lab Methods Course In Hydrology To Integrate STEM Into Undergraduate Water Curriculum Mohammad Z. Iqbal and Maureen E. Clayton	41
Profile of an Elementary STEM Educator Sharon W. Bowers, Thomas O. Williams, Jr. and Jeremy V. Ernst	51
Engineering Design Innovation through C-K theory based Templates Ramana M. Pidaparti, Prabaharan Graceraj P, Jacquelyn K. S. Nagel and Christopher Stewart Rose	58
Building Stem Career Interest Through Curriculum Treatments Bryanne Peterson	64
Developing Workforce Skills in K-12 Classrooms: How Teacher Externships Increase Awareness of the Critical Role of Effective Communication Bradley Bowen and Teresa Shume	74
Instructions for Authors	82
Contribution Form	83



The Journal of STEM Education: Innovations and Research (ISSN 1557-5284) is published by The Institute for STEM Education and Research, P.O. Box 4001, Auburn, AL 36831. www.jstem.org The Institute for STEM Education and Research is a non-profit entity. Periodicals postage rate paid at Auburn, AL and additional mailing offices.

CONTRIBUTIONS are greatly appreciated and are tax-exempt.

PERMISSION FOR USE: The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works or for resale. Specific written permission must be obtained from the publisher for such copying.



Copyright @ 2012 by The Institute for STEM Education and Research. It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. The copyright covers the exclusive rights to reproduce and distribute the article, including reports, photographic reproductions, microfilm or any other reproduction of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, photocopying, recording or otherwise, without permission in writing from the copyright holder.