

Blue Waters Education Allocations Final Report

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

As a component of your application for a Blue Waters education allocation, you agreed to provide a report at the end of your project. Now that your project is complete, we would appreciate your submission of the following information within two weeks. Please send this report, and any supporting documents, to Scott Lathrop, lathrop@illinois.edu.

This information will be shared with the Blue Waters team and the National Science Foundation. Portions of the report (we will omit names of participants) will be posted on the Blue Waters portal for public access.

Project Information

Project Name	Computer Science and Mathematics
Names of project staff (instructors, TAs, etc) and their department and institutions	<p>Prof. Ana C. González, PI, University of P.R.-Mayaguez</p> <p>Shariemar Lopez, undergraduate, University of P.R.- Mayaguez</p> <p>Efraín Vargas(XSEDE scholar), graduate, University of P.R.-Rio Piedras</p> <p><u><i>Students who joined the group part of the time:</i></u></p> <p>Cecilia Chen, undergraduate, University of P.R.- Mayaguez (also took a parallel comping course with me)</p> <p>Manuel Ayala, undergraduate, University of P.R.- Mayaguez(took at UPRM the course offered by Dr. William Gropp)</p>
URL for the project	<p>Piazza platform was used during summer 2015 :</p> <p>https://piazza.com/class/iaay7042ep1560k</p>

Provide links to or attach materials made available to participants (e.g. slides, articles, exercises, etc.) that may be made publicly available	<p>Shariemar López participated in:</p> <ul style="list-style-type: none"> · Symposium for undergraduate and graduate research at Department of Mathematical Sciences at UPR-M, December 8, 2015, poster presentation (pdf of poster included) · SIDIM, http://sidim.uprh.edu/sidim2016/posters.htm , Poster presentation, (pdf of poster included) · Paper submitted to JOCSE , (pdf included) <p>Efrain Vargas participated in:</p> <ul style="list-style-type: none"> · XSEDE2016 poster presentation (pdf of poster included) · XSEDE2016 Scholar Lighting Talks(pdf of presentation included)
Provide links to or attach any photos (with captions to describe activities)	Pictures of participants in the different activities(included)
Start date	May 25, 2015.
Completion date	May 31, 2016.

Information about the Participants

# Participants	# Faculty or staff	# students	# other (e.g. industry)	# under-represented (e.g. women, minorities)	# institutions represented by participants
5	1	4		4	2

Please describe the scope and purpose of this project. Also, please indicate if there were any changes implemented from the original proposed plan, and briefly describe why they were made.

Enhance the undergraduate educational experience providing a research opportunity that will allow the students to sharpen a number of skills essential for the development of individuals with expertise in petascale computing.

Exposed the students to the complete research process, with the benefit of incorporating the use of Blue Waters resources and developing skills in computational thinking, computer programming, high performance computing and algorithm development.

Use the experience gained from this educational event to develop educational modules that will allow to incorporate a parallel computing culture throughout the Computer Science and Mathematics curriculum at UPR-M.

Learn how to modify existing codes to port and tune them for Blue Waters system.
Learn the nuances of the Blue Waters system and create examples that will be useful for other learners of the system.

Please describe the learning outcomes of the participants. How did this project enhance the learning of the participants? What did the participants learn as a result of the use of Blue Waters system that they could not have learned using other systems?

Exposed the student to the complete research process, with the benefit of: incorporating Blue Waters resources and developed skills in computational thinking, computer programming, high performance computing and algorithm development

Please describe lessons learned from the project. What would you do differently next time?

The students were not able to implement the algorithms in the MPI platform. Need more time to work with distributed memory model.

What would you recommend that the Blue Waters team do to enhance the success of education projects in the future?

After the two week workshop, follow up with webinars, reinforcing the use of scripts , and the architecture of BW, etc. More tutorials about parallel computing.

Include professors in the workshop.

Please provide a summary of any surveys or evaluations you conducted of the participants. Feel free to attach any related documents.

Please provide any anecdotal stories we may share with NSF and the public.

This has been an extraordinary experience to both the professor and the students. The students were so proud that they were able to use such a powerful machine and being able to participate in talks and posters presentations.
I'm planning a second phase to this project using MPI.

How would you rank the overall experience?

	Excellent	Very Good	Good	Fair	Poor	N/A
Education allocations process	x					
Blue Waters support	x					
Blue Waters computing system	x					
Blue Waters documentation		x				
Blue Waters training		x				

Do you plan to request an education allocation for other future events that will use BW?
Please describe the plans for future events, including the frequency (each semester, yearly, etc.).

Yes , I plan to request education allocation in the future. Each year.

Please provide any other comments or suggestions.

