**Blue Waters Petascale Semester Curriculum v1.0**

**Unit 5: MPI**

**Lesson 8: MPI Applications**

**Instructor Guide**

*Developed by Hyacinthe Aboudja for the Shodor Education Foundation, Inc.*



*Except where otherwise noted, this work by The Shodor Education Foundation, Inc. is licensed under CC BY-NC 4.0. To view a copy of this license, visit*[*https://creativecommons.org/licenses/by-nc/4.0*](https://creativecommons.org/licenses/by-nc/4.0)

*Browse and search the full curriculum at*[*http://shodor.org/petascale/materials/semester-curriculum*](http://shodor.org/petascale/materials/semester-curriculum)

*We welcome your improvements! You can submit your proposed changes to this material and the rest of the curriculum in our GitHub repository at*[*https://github.com/shodor-education/petascale-semester-curriculum*](https://github.com/shodor-education/petascale-semester-curriculum)

*We want to hear from you! Please let us know your experiences using this material by sending email to* [*petascale@shodor.org*](mailto:petascale@shodor.org)

The instructor should follow the steps below:

* Briefly introduce the concept of Clusters
* Access remotely a super computer (here Blue Water or the available local supercomputer)
* Upload the source code (hello\_mpi.c, Are\_cure\_mpi.c, and other available in the pool)
* Load the OpenMPI or any equivalent MPI package module on the system
* Compile the source code with a name to the executable
* Edit the job script (myJob\_hello\_mpi\_Script)
* Submit the job (qsub for PBS/TORQUE or sbatch for SLURM)
* Wait for the ERROR and OUTPUT files when the job run is complete.
* Analyze those 2 files
* Debug if necessary
* Try it again with other different source code