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

**Unit 1: Computation Across the Curriculum**

**Lesson 2: Parallel Programming and Performance**

**Exercise Instructions for Students**

*Developed by Nitin Sukhija for the Shodor Education Foundation, Inc.*

1. What is Flynn’s Taxonomy?
2. Describe Parallel Computer Memory Architectures.
3. What are the goals of parallel programming?
4. Name some factors that leads to performance degradation in parallel programs.
5. What is Amdahl’s Law?
6. What is Gustafson’s Law?
7. What is the difference between strong scaling and weak scaling?



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*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)