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

**Unit 2: Parallel Computing Concepts**

**Lesson 5: Shared Memory and Distributed Memory & Interconnection Networks**

**Instructor Guide**

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*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)

No materials or other requirements are needed for this lesson.

The PowerPoint slides provide a basis for an introductory/overview lecture and the homework problems provide exercises for students to work either in-class or at home. The PowerPoint slides should cover the 20-25 minutes with the homework problems reinforcing and expanding on the material. The PowerPoint slides are in a very basic format to simplify customization to a desired background.

It is suggested to have the students work the homework problems on their own and then present solutions during class with a discussion period for each problem. The homework problems can be extended to increase difficulty or this can be used to help facilitate discussion during the in-class discussion of the problems.

**Common Pitfalls for Instructors and Students**

**Instructors:**

**Students:**

· Not seeing that shared and distributed memory can exist and co-exist in a system.

· Not seeing that distributed memory will have non-uniform memory access times because the memory is distributed across the system.