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

**Unit 4: OpenMP**

**Lesson 8: Markov chains, Matrix multiply**

**References / Further Reading**

*Developed by Paul F. Hemler for the Shodor Education Foundation, Inc.*

1. <http://shodor.org/petascale/materials/UPModules/probableCause/>
2. <https://brilliant.org/wiki/markov-chains/#:~:text=A%20Markov%20chain%20is%20a,possible%20future%20states%20are%20fixed.>
3. <https://setosa.io/ev/markov-chains/>
4. <https://towardsdatascience.com/brief-introduction-to-markov-chains-2c8cab9c98ab>



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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)