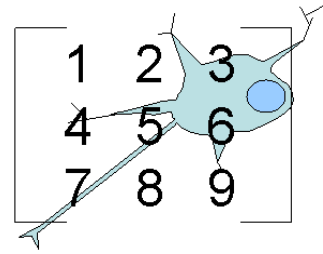


Neural Networks

Instructional Material

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Grade Level: 9 – 12, undergraduate
Subjects: Applied Mathematics – Matrix Algebra
Biology – Neuroscience



All materials (lesson plans, this handout, and the powerpoint presentation) are available for download at:

<http://csn.beckman.uiuc.edu/>

➤ Courses > Neural Networks: Instructional Material

Topics

Lesson I

Introduction to Neural Networks

An Application of Matrix Multiplication

An introduction to neural network modeling, focusing primarily on the representation of neural systems using matrix algebra.

Lesson II

Neural Network Structures

Lateral Inhibition

A look at one of the most fundamental and commonly seen neural computations involving groups of neurons in a network.

Lesson III

Neural Network Learning

Hopfield Networks

Analysis of a learning rule in neural networks, by which neurons learn to strengthen their connections based on correlated activities.

Lesson IV

Neural Network Learning

Delta Rule

Exploration of the Delta Rule, a form of learning which is driven by errors in the output.