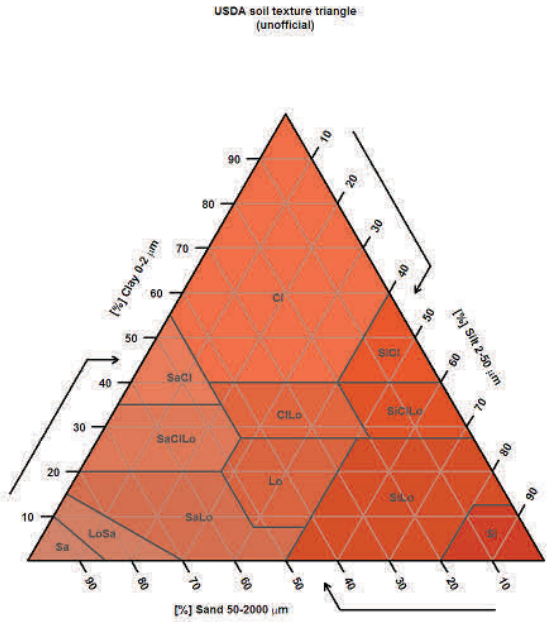
FAQs

1. Do I need to have prior programming experience to take part in this workshop?

No! This workshop is designed to give any interested user a framework for understanding R. Introductory programming concepts will be covered.

2. How important is it for high school students to learn to program?

Programming skills are a powerful tool for student advancement, especially for students planning to enter STEM fields. Becoming familiar with a programming language such as R allows the student to analyze complex problems and visualize datasets quickly. Students not planning on entering these fields can also benefit; learning to program teaches important problem solving and logical skills invaluable to all fields of study.



USDA Soil texture classification

Vibes and Waves in Action

University of Massachusetts Lowell
FA 203
1 University Avenue
Lowell, MA 01854

Phone: 978-934-3356
E-mail: Kavitha_Chandra@uml.edu

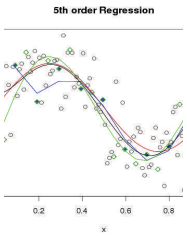
Vibes & Waves in Action

Creating Waves Series

R Programming Workshop for Educators

Vibes & Waves in Action

R Programming Workshop



Multiple Regressions for a noisy data set in R

Why Use R?

R is the programming language of choice for statistical computing and graphics involving large data sets.

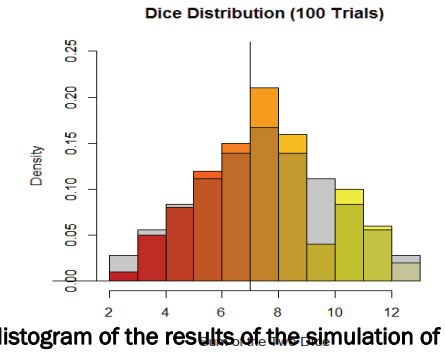
R is an open source project, and is completely free to download and use! R is supported by a wide user-base that constantly releases new, easy to install packages designed to extend the capabilities of R.

R is easy to use, application specific, and offers a wide variety of packages for analysis and visualization. It is especially useful for handling exceptionally large data sets.

R can also be used to rapidly simulate random phenomenon from simple coin flips and dice roll experiments ranging to the more complex dynamics of electron motion under various forces. This allows educators to develop experiments

Workshop Objectives

- Provide a tutorial on the use of R that is both accessible to new programmers and engaging to those with previous experience.
- Learn to perform basic statistical analysis, simulate random and deterministic phenomenon, and create representative graphs of these experiments.
- Develop skills needed to construct datasets for future classroom modules.
- Allow participants to access and interpret datasets obtained from other platforms.



Histogram of the results of the simulation of two dice being rolled 100 times.

Topics

The R workshop will encompass a variety of topics:

- Basic programming concepts such as variables, loops, and arrays.
- Vector and matrix operations within R.
- Computational Arithmetic
- Random Numbers
- Graphs: Histograms, scatterplots, line plots

Duration: 3-6 Hours

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