



MICHIGAN STATE
UNIVERSITY

CERTIFICATE COURSE

R for Plant Breeders

From Raw Data to Genetic Gain:

Practical R Programming for Modern Plant Breeding

A comprehensive 14-week online course that equips plant breeders and researchers with the R skills needed to analyze complex data, evaluate germplasm, and make data-driven breeding decisions.



14-WEEK COURSE

August 31st – December 18th
Self-paced | Asynchronous
100% Online



FLEXIBLE LEARNING

Learn on your schedule,
anytime, anywhere



CERTIFICATE OF COMPLETION

From Michigan State University

WHAT YOU WILL LEARN



Data Cleanup
and Management



Experimental Design
and Analysis



Mixed Modelling
and BLUPs



Variance Components
and Heritability



Data Visualization
with ggplot2



Genotype-by-Environment
(G×E) Analysis



AMMI and GGE Biplots



Multi-Trait
Selection Methods



Spatial Correction of
Field Trial Data



Simulation of
Breeding Programs



Genomic Data Analysis
Fundamentals



Reproducible Research
and Reporting in R



...and more!



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"I found this course incredibly valuable and practical for my work... and I've already started incorporating the modules into my workflow"

– Sarah, Assistant Breeder at Driscoll's

REAL PLANT BREEDING DATA



Genotype	Env	Rep	Trait1	Trait2	Yield
G101	E1	1	12.5	3.2	5.48
G101	E1	2	11.8	3.1	5.21
G102	E1	1	13.1	3.4	5.93
G102	E1	2	12.6	3.3	5.75
...					

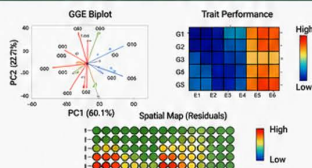
Work with real-world datasets from multi-environment trials and breeding programs.

PRACTICAL R SKILLS



Learn modern R packages and reproducible workflows used in plant breeding research.

APPLY. ANALYZE. IMPROVE.



Use powerful statistical and graphical tools to gain insight and drive better selection decisions.



INVEST IN YOUR FUTURE

\$1,600

Industry Professionals

\$800

Public Sector Students

Tuition includes all course materials and access to course resources for the duration of the program.



WHO SHOULD ENROLL?

- ✓ Plant Breeders
- ✓ Graduate Students
- ✓ Crop Scientists
- ✓ Geneticists
- ✓ Agronomists
- ✓ Seed Industry Professionals
- ✓ Agricultural Data Analysts
- ✓ and more!



LEARN MORE & ENROLL

<https://online.msu.edu/programs/global-plant-breeding-ms>



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SCAN TO LEARN MORE
AND ENROLL!

