



MICHIGAN STATE
UNIVERSITY

CERTIFICATE COURSE

Quantitative Genetics for Plant Breeders

*From Genes to Gain: Advanced Tools for
Genetic Analysis and Breeding Decisions*

A comprehensive 14-week online course that equips plant breeders and researchers with advanced quantitative genetics concepts and modern analytical tools to dissect complex traits and accelerate genetic gain.



14-WEEK COURSE

May 17th – August 20th, 2027

Self-paced | Asynchronous
100% Online



FLEXIBLE LEARNING

Learn on your schedule,
anytime, anywhere



CERTIFICATE OF COMPLETION

From Michigan State University

WHAT YOU WILL LEARN



Model Optimization

Improve accuracy and
prediction of genetic models



Marker Assisted Selection

Use markers to improve
selection efficiency



Genomic Prediction

Build and apply genomic
prediction models



GWAS and QTL Mapping

Identify genetic loci associated
with important traits



Drone Image Analysis

Analyze high-throughput
phenotypic data from drones



Two-Stage Analysis

Integrate stages to enhance
selection decisions



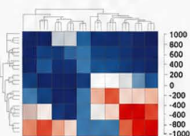
SNP Analysis

Explore and analyze SNP
data for genetic insights



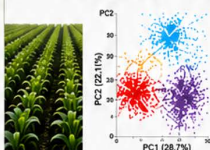
...and more!

ADVANCED QUANTITATIVE GENETICS



Understand and apply modern
quantitative genetics methods
for plant breeding.

REAL-WORLD DATA APPLICATIONS



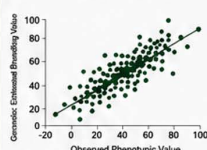
Work with genomic, phenotypic,
and environmental data from
real breeding programs.

PRACTICAL TOOLS & SOFTWARE



Hands-on training with industry-
standard tools and reproducible
workflows.

BOOST SELECTION ACCURACY



Improve prediction accuracy
and accelerate genetic gain in
your breeding program.



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
- ✓ Geneticists
- ✓ Crop Scientists
- ✓ Biostatisticians
- ✓ Data Analysts
- ✓ Agronomists
- ✓ and more!



LEARN MORE & ENROLL

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



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SCAN TO LEARN MORE
AND ENROLL!

