

PLANT BREEDING 2 FIGHT HUNGER

ONLINE CERTIFICATE COURSE

Organized by
Michigan State University

May 13-
August 15,
2024

DESCRIPTION

Plant breeding is the art and science of crop improvement. To feed an additional 3 billion people by 2050, food production needs to double while using less land, water, and other resources. The way forward is improving crops to be resilient to climate change with resistance to biotic and abiotic stresses. To achieve this goal, a well-trained workforce equipped with a sound knowledge of the plant breeding process and technologies that improve its efficiency is needed.

However, a 2016 study by USDA and Purdue University points to an alarming deficit in trained graduates in the US, particularly in the field of plant breeding. The situation is no better globally and specifically in Asia and Africa where population increase would be the highest by 2050.

With the goal of training plant breeders without borders, this course will focus on conventional and modern plant breeding methods, tools and technologies available for crop improvement.



WHEN

May 13 – August 15, 2024

APPLICATION DEADLINE

May 05, 2024

WHERE

ONLINE

COURSE FEE

\$600 for Public sector
\$1200 for Private sector

A CERTIFICATE COURSE



Dr. Cholani Weebadde

Associate Professor and Plant Breeder
for International Programs

Program Director



Haley Jenkins

Program Assistant



Patricia Sutherland

Admin Assistant

TOPICS COVERED IN THIS COURSE

WEEK 1	History of Plant Breeding and domestication of crops
WEEK 2	The Plant Breeding process
WEEK 3	Review on how traits are inherited: Part I – Mendelian genetics and Chi-square statistics
WEEK 4	Experimental design and Heritability calculations in Plant Breeding
WEEK 5	Mode of reproduction in plants and their impact on plant breeding
WEEK 6	Methods for breeding self-pollinated and cross-pollinated crops
WEEK 7	Review on how traits are inherited: Part II – Non-Mendelian genetics
WEEK 8	Review of genetic linkage and mapping
WEEK 9	Basic Molecular Biology Techniques and Marker-Assisted Breeding (MAB) Applications in Plant Breeding
WEEK 10	The process of developing markers for Qualitative and Quantitative traits
WEEK 11	Use of Genetic Engineering as a plant breeding tool
WEEK 12	Regulatory approvals needed for testing and releasing genetically engineered crops to farmers
WEEK 13	Use of Gene Editing and new breeding tools (NBTs) in plant breeding
WEEK 14	Overview of genomics, phenomics, machine learning & Artificial Intelligence (AI) in crop improvement

THIS COURSE IS FOR YOU, IF YOU

- ☆ Wish to contribute towards feeding the world
Wish to be a hunger fighter like Dr. Borlaug, the man who fed the world!
Are excited about crop improvement
- ☆ Want to teach plant breeding to students
- ☆ Want to work at a seed company
- ☆ Are already working at a seed company
- ☆ Want to start a plant breeding program in the public sector or private sector
- ☆ Want to know how to improve the efficiency of your plant breeding program
- ☆ Want to conduct research on crop improvement
- ☆ Want to add plant breeding as a professional qualification to your resume
- ☆ Want to start a career in plant breeding

Register at <https://bit.ly/4ar5uf6>
Seats are limited for summer 2024 session.

