

THE CROPS RESEARCH INSTITUTE (CRI) OF THE COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH (CSIR) GHANA ANNOUNCES AN MPhil PLANT BREEDING AND BIOTECHNOLOGY PROGRAMME IN AUGUST/SEPTEMBER 2016

Council for Scientific and Industrial Research (CSIR), Ghana has received accreditation from the National Accreditation Board to run post-graduate degree programmes with a more practical orientation. The CSIR-Crops Research Institute, the largest of the 13 Institutes of the Council for Scientific and Industrial Research announces an MPhil Plant Breeding and Biotechnology programme in August/September, 2016. More information on the programmes and registration forms can be accessed through its website www.cropsresearch.org; www.ccst.edu.gh.

Aims

The course provides knowledge and skill for students wishing to undertake a career in plant breeding and crop biotechnology. The course is relatively new and would be beneficial in producing highly skilled manpower capable of developing plant varieties that show potential in achieving food security in an increasingly harsh climatic condition with attendant socio-economic crisis. This course is unique in the sense that it will bring biotechnology and breeding to the fore in our effort in crop improvement. The CRI has benefited from a World Bank Facility through the WAAPP which has enabled it build a state-of-the-art Research Facility at CSIR-Crops Research Institute. The CSIR-CRI is National Centre of Specialization for Root and Tubers which is being upgraded to regional centre of excellence. The CSIR-CRI has the capacity to train large numbers of Plant Breeders and Biotechnologists to the highest level. CSIR-CRI has irrigation facilities for field work, screening houses for controlled experiments and research sub stations in the various agro ecological zones in Ghana for multilocational trials. This in addition to their rich human resource gives the CSIR-Crops Research Institute significant advantage over other Institutions who may be running similar programmes. This course falls in line with the mandate of corporate CSIR ‘to develop, package and disseminate science and technology information’ and CSIR-Crops Research Institute’s mission ‘To develop and disseminate environmentally-sound technologies and **build capacity** for high and sustainable food and industrial crop productivity to enhance food security and poverty reduction’ by focusing on crop improvement through advances in resource use efficiency, modern trends in crop improvement and breeding techniques including genetic manipulation through efficient use of biotechnological tools.

Objectives

The students are expected to acquire knowledge in the application of advanced crop improvement principles to breed crops adapted to the different agro-ecological zones of the country; analytical methods to assess the stability of crops bred for biotic and abiotic stress conditions; understand genetic variation of tropical crops for genetic hybridization. They will also acquire practical skills for genetic manipulation and plant breeding, selection of appropriate

breeding strategies, application of biotechnological tools (molecular and tissue culture) for crop improvement and production, application of molecular markers and their use in gene mapping and crop improvement and be familiar with the respective roles of producers, traders, consumers and governments in setting breeding goals (value chain approach). The student will also acquire knowledge in Crop Physiology and Crop Protection.

The programme through off-site visits will widen awareness of the latest developments in, and requirements of modern agro-industry as related to the exploitation of these technologies for a wide range of commercially important crops. This will enable the students to demonstrate their ability to learn and conceptualize multiple theoretical and practical research tasks assigned to them.

Courses to be run include:

- i. Advanced Plant Breeding
- ii. Crop Improvement
- iii. Principles and Methodology of Tissue Culture
- iv. Molecular Plant Breeding
- v. Biometry and Research methods
- vi. Advanced Floral & Reproductive Biology
- vii. Genomics and Bioinformatics
- viii. Climate Change and its Impact on Crop Production
- ix. Principles and Practices of Crop physiology
- x. Basic and Intermediate Scientific communication in French
- xi. Advanced Plant Pathology/Virology/Nematology
- xii. Advanced Entomology/Weed Science
- xiii. Seed Science & Technology

Entry requirements:

- Successful completion of an undergraduate degree in Agriculture, Biological Sciences, Horticulture, Botany or related fields with at least a Second Class degree from an accredited university.

- Proof of English Language Proficiency: Applicants who have not been instructed in English at the undergraduate level must have a test score of at least 550 (paper test) or 213 (computer test) on the Test of English as a Foreign Language (TOEFL).