



The Abdus Salam

**International Centre
for Theoretical Physics**
Physics Without Frontiers



Training in Advanced Statistics and Programming in R Ghana

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Ghana Atomic Energy Commission/School of Nuclear and Allied Sciences

Celebrating 10 Years of Physics Without Frontiers

22th November 2022

Introduction



- Irene Opoku-Ntim (Ph.D)
- Ghana officially the **Republic of Ghana**, is a country in West Africa. It abuts the Gulf of Guinea and the Atlantic Ocean to the south, sharing borders with Ivory Coast in the west, Burkina Faso in the north, and Togo in the east
- STEM education has become an essential form of education needed to improve education in Ghana. Taking into consideration the technological era we are in now, it is important for learners and teachers to understand the importance and relevance of STEM education and why it should be embraced.

PHYSICS WITHOUT FRONTIERS: GHANA

Training Workshop in Advanced Statistics and Programming in R

23-27 May 2022

**School of Nuclear and Allied Sciences,
University of Ghana**

indico.ictp.it/event/9908/

ICTP Physics Without Frontiers in conjunction with the School of Nuclear and Allied Sciences, University of Ghana is organising a one-week training workshop in Advanced Statistics and Programming in R supported National Nuclear Research Institute, Ghana Atomic Energy Commission.

Both theoretical and technical lectures will be offered as well as dedicated hands-on sessions where students will learn how to use the R-Programming tools. General topics will include Statistics and probability, An introduction to the R environment; Basic to advanced programming skills: data generation, manipulation, summaries, and plotting; Fitting statistical models: estimation, prediction, and testing; Drawing statistical inference from data and Basic statistical learning techniques

Organising Committee

Dr. Maurice Arthur, Nuclear Power Institute, Ghana Atomic Energy Commission

Dr. Philip Deatanyah, Radiation Protection Institute, Ghana Atomic Energy Commission

Dr. Irene Opoku-Ntim, National Nuclear Research Institute, Ghana Atomic Energy Commission

Dr. Joseph Bremang Tandoh, School of Nuclear and Allied Sciences, University Ghana

Dr. Christiana Odumah Hood, University of Cape Coast

Mr. Frank Quashie, National Nuclear Research Institute, Ghana Atomic Energy Commission

Dr. Owiredo Gyampo, National Nuclear Research Institute, Ghana Atomic Energy Commission



INTRODUCTION

- Fundamental fields like Statistics and programming is the backbone of every research work, many young graduates are struggling to apply it to their research work.
- A training workshop on Advanced Statistics and Programming in R was held at the Ghana Atomic Energy Commission (GAEC), Ghana from May 23-27, 2022.
- Forty(40) undergraduate and graduate students were trained

11/17/22



Fig 1: A group photo of a section of Participants

PWF GHANA TRAINING

- The aim of the course was to offer an elaborate introduction to Statistics and statistical programming in R where students will learn to operate R, make plots, fit, assess and interpret a variety of basic statistical models.
- At the end of the training, a follow up shows that students who attended are using the knowledge acquired to help them in their data collection, data analysis and effectively present their results and interpret them

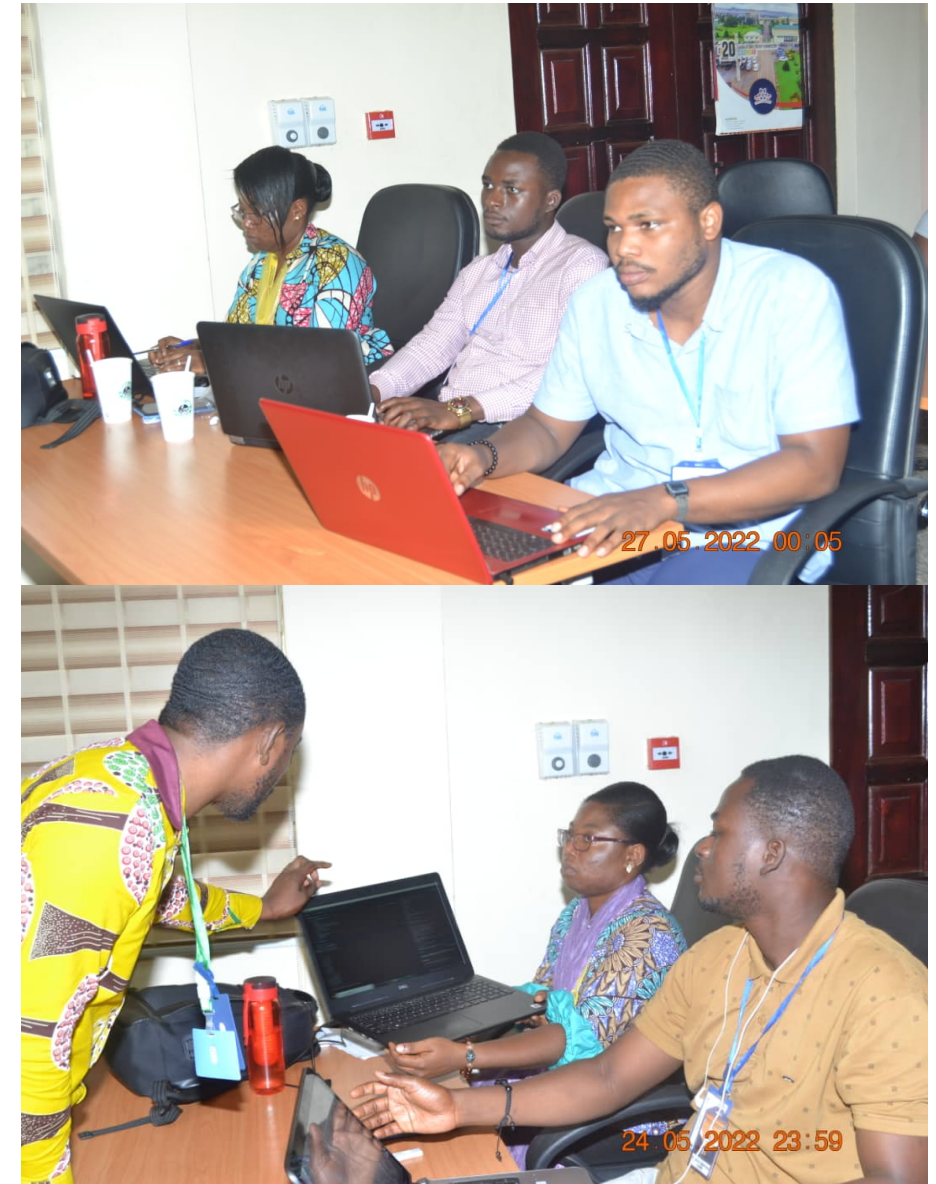


Fig 2: A section of students and volunteers

PWF TRAINING IN GHANA-COMMENTS FROM PARTICIPANTS



Fig 3: A section of participants

- One student expressed her excitement by saying “ I never knew programming in R was this easy, I would have started using it earlier if I had good trainers”.
- “We would love to apply for the ICTP diploma programmes, never knew such opportunities were available for us physicist”

Impact on Students

- Most of the students looked fulfilled and happy to be part of the training course.
- Most students expressed their excitement about the program and wish they had more days for the training.
- They asked volunteers to organise another session for them and make the program an annual one.



Fig 4: A group of participants

Impact of the Programme in Ghana



Fig 4: A section of participants receiving their certificates of

- Students who attended this training workshop are using their knowledge gained to also train their colleagues who were not able to attend and also help them in their thesis work

Future of PWF in Ghana

- The training will be an annual program which will be a collaboration between ICTP PWF, University of Ghana and Ghana Atomic Energy Commission.
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- The program will be extended to more students within the country



Fig: A section of students during a Q/A session and certificate presentation