Agnes Langat – NRSGH report, 15th -26th June 2020

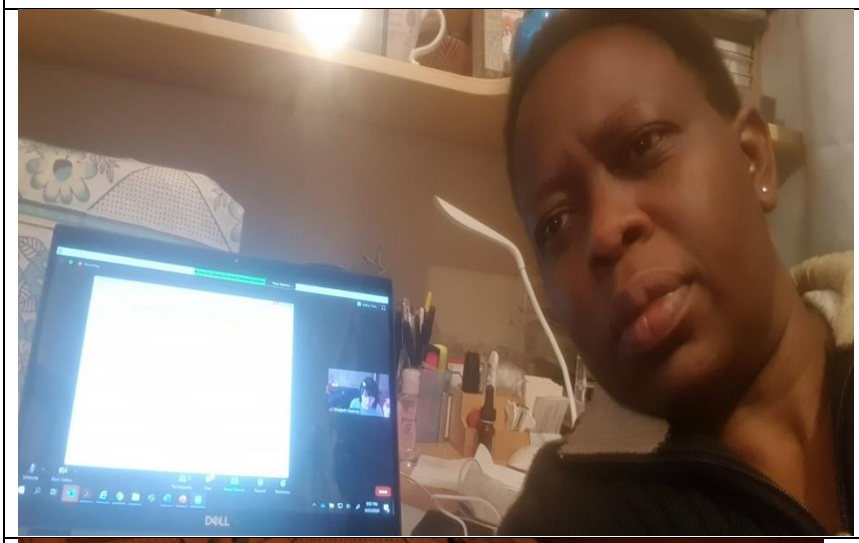
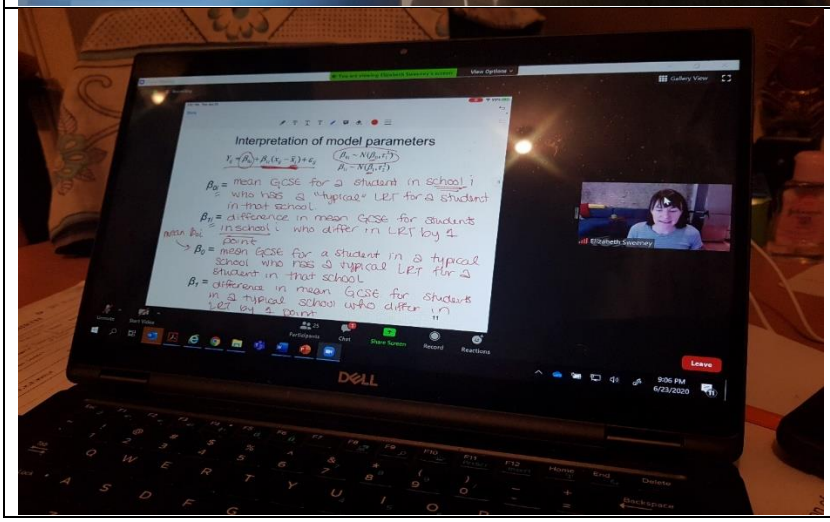
I am a PHD student in University of Bergen but working in Kenya. The COVID pandemic has changed a lot of what we knew as normal and we now have a "new normal" to adapt to. One of the new things in the education sector is the adaptation of having all the classes being held virtually. The University of John Hopkins, in Baltimore, USA, was not exempted and this summer they had virtual courses and I attended the **Longitudinal data analysis** on 15th -19th June,2020 **and Multilevel model analysis** on 22nd -26th June 2020. This worked well for me as I did not have to travel out of the country, and I was home with my family. The sacrifice I had to make was having late evening classes because of the time difference, but prior planning around the family schedule worked well.

The Longitudinal data analysis course covered topics ranging from exploring longitudinal data; linear and generalized linear regression models for correlated data, including marginal random effects, and transition models; and handling missing data. Also covered were the use of a general linear model to make scientific inferences about the relationship between response and explanatory variables while accounting for the correlation among repeated responses for an individual. Then we covered the use of marginal, random effects, or transitional generalized linear models to make scientific inferences when the repeated observations are binary, counts, or non-Gaussian continuous observations

The Multilevel model analysis courses included an overview of "multilevel models" and their application in public health and biomedical research. Multilevel models are statistical regression models for data that are clustered in some way, violating the usual independence assumption. There was a focus on the main ideas and on examples of multilevel models from public health research. We learnt how to formulate substantive questions in terms of a multilevel model, to fit multilevel models using Stata during laboratory sessions and to interpret the results.

Both courses employed the use of zoom breakout rooms, and this really worked well for small group discussions and lab work for doing practice analysis to supplement the class lectures. Being able to understand how the longitudinal analysis and multilevel analysis form a core part of my work, and the knowledge I have acquired have given me a wider understanding of the analysis language used in the different models and also will increase the depth of my understanding the literature review with such analysis as I continue to work on my PHD work.

Though I was not able to meet other colleagues physically it was nice to be able to have group discussions and work together. I must say I missed the multi-cultural social activities that usually happen when you have a physical class. I would recommend this course to anyone who is looking at longitudinal data and multilevel analysis.

	Learning in zoom class in my small reading room. Had to switch off the lights because of the reflection
	Trying to take a “selfie” -not very good at it
	One of slides being presented during the lecture