I-HELP Liberia Mathematics Teacher Training Program: Fall 2024

Instructor: Dr. Andrew Obus, CUNY Baruch College, New York City, USA

Meeting time: Fridays 4:00 - 6:00 PM, unless otherwise noted. Participants who complete the entire training will receive a certificate to that effect.

Meeting place: The Zoom link for this course is `https://baruch.zoom.us/j/8820220889`

The password is `3.14159`

NEW! Website and YouTube Channel: There is now a website for this course at

`https://blogs.baruch.cuny.edu/aobus/liberian-mathematics-teacher-training-program`

where I will post notes and course materials. I also have a YouTube channel where I will post recordings of the lectures, located at

`https://www.youtube.com/@andrewobus747/videos`.

Chat room: There is a Whatsapp chatroom for this course entitled "Math Teacher Training". Please contact Sangay Freeman to be added to this chat room. I will post important notices to this chat room from time to time.

Textbook: I will draw inspiration from the textbook "Single Variable Essential Calculus, 2nd Edition" by James Stewart.

Objectives: The theme of this semester will be **calculus**, specifically **differential calculus**. Unlike some of the other topics we have worked on in previous years, this may be a topic that is completely new to many of you. We will continue studying differential calculus in the spring. Depending on the interests of the class, we may continue on to study some **integral calculus**, or we may focus more on **sequences and series**.

In order to build the foundation to study calculus, we will need to spend time at the beginning of the term learning about *relations*, *functions*, and *limits*.

Homework: Practice exercises will be assigned at the end of every session. Working on these problems is *essential* if you want to get the most out of the training. Participants will present and discuss solutions at the next session.

Attendance Policy: Participants are expected to attend classes *consistently*. This training is cumulative (even more so than in previous years!), and the sessions build on each other. It will be very difficult to follow the course when you miss a session. If you miss more than 3 sessions, you may be dropped from receiving data funds for the training.

In particular, the material for Spring 2025 will depend heavily on the material from Fall 2024. Thus, **only participants who attend consistently in Fall 2024** will be given funding for the program in Spring 2025. No new participants will be funded. If you are unable to attend consistently in Fall 2024, there will be another year of the program in Fall 2025 – Spring 2026 which you may join.

Schedule of topics:

Date	Topic
September 13	Introductions, what is calculus?
September 20	Relations and functions
September 27	Review of the standard functions
October 4	NO CLASS
October 11	Limits of functions, the finite case
October 18	NO CLASS
October 25	Limits of functions, the infinite case
November 1	Left and right limits, continuity
November 8	NO CLASS
November 15	The meaning of the derivative
November 22	Computing simple derivatives
November 29	NO CLASS
December 6	APPLICATION: Motion and physics
December 13	Rules for computing derivatives
December 20	APPLICATION: Maxima, minima, and optimization problems