



PIONEERS OF PROGRESS: CONTRIBUTIONS OF MATHEMATICS FACULTY TO THE HISTORY OF ADDIS ABABA UNIVERSITY

By

Dr. Melkamu Zeleke

On Behalf of the Organizing Committee

EARLY HISTORY



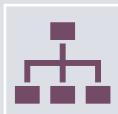
- **University College of Addis Ababa**, the first four-year degree granting institution of Higher Learning in Ethiopia, was established in 1950.
- This historic development took place about nine years after the Italian occupation of Ethiopia ended.
- The University College had two faculties: **Faculty of Arts** and **Faculty of Science**.
- The programs offered by Faculty Science were in Biology & Chemistry; **Mathematics & Physics**; Chemistry & Geology; and Pharmacy.
- The programs offered by Faculty of Art were in Administration; Education; Business & Economics; Social Science & Humanities.



THE “MATTE” FACTOR



University College of Addis Ababa was established under the leadership of **Dr. Lucien Matte**, a Jesuit from Canada at the request of Emperor Haile Selassie.



He designed the organizational structure of the University College.



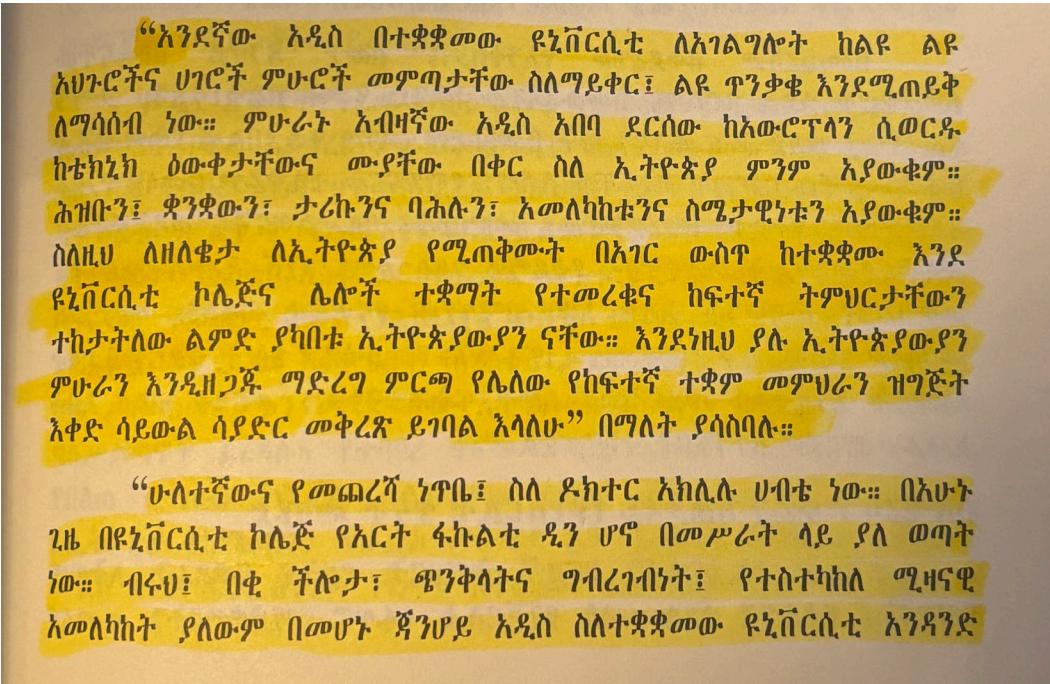
He ensured the degrees would be recognized internationally (initially by affiliating with the University of London).



He famously navigated the delicate balance of running a secular, state institution while being a Catholic priest, adhering to the Emperor's strict rule: "**Education for the State, Religion for the Church.**"

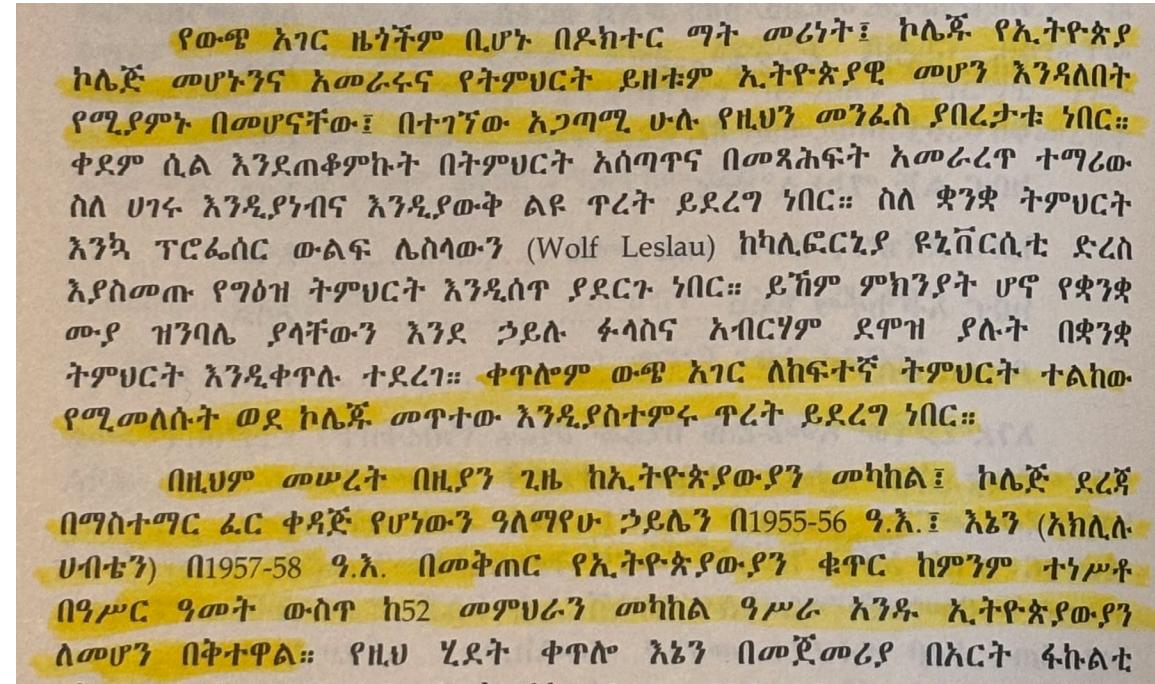
THE “MATTE” FACTOR CONT’D

- Dr. Matte’s Message to the Emperor



Excerpts taken from **Dr. Aklilu Habte's book on the History of Haileselassie I University**

- Dr. Matte’s Early Actions





A HISTORIC EVENT



A landmark event occurred in **1955** with the appointment of **Alemayehu Haile**, an Ethiopian mathematician, to be the first Ethiopian teaching staff at the college level.



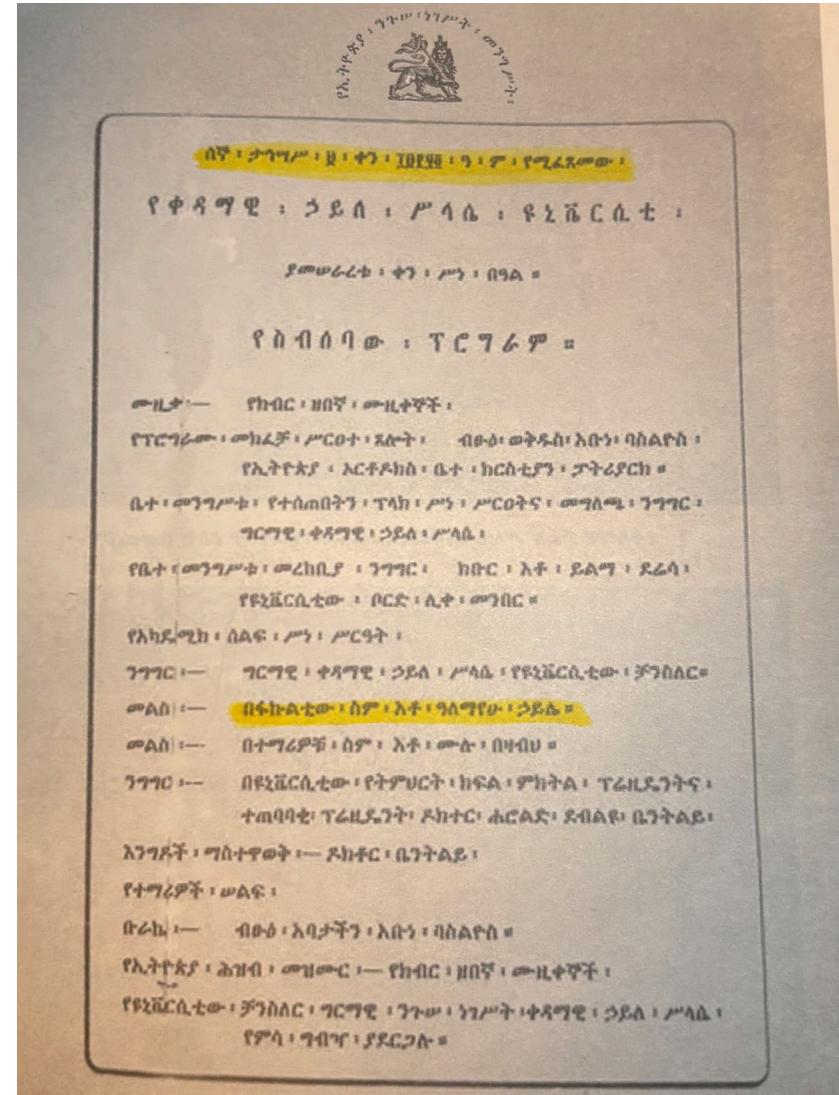
Having completed a **B.Sc. in Mathematics** from Greenville College (Illinois, USA) and an **M.Sc.** from the **University of Chicago** in 1954, he joined the Faculty of Science as an **Assistant Professor of Mathematics**.



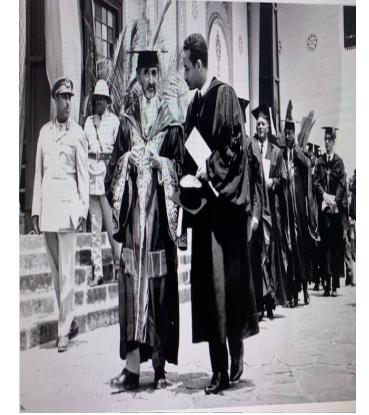
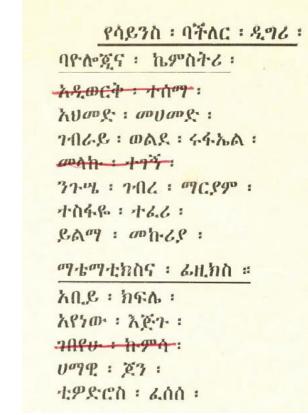
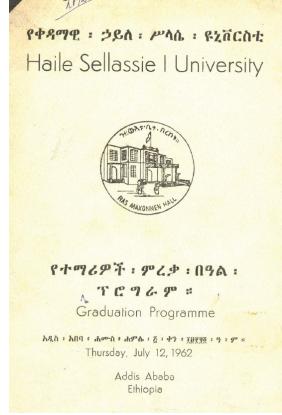
His appointment symbolized the beginning of Ethiopian academic leadership in the discipline and the university in general.

HAILESELASSIE I UNIVERSITY

- The hard work to establish Ethiopia's first university came to fruition **twelve years** after the establishment of the University College of Addis Ababa.
- Faculties of **Arts, Science, and Education** formed the university's core academic base. The other faculties/colleges included to the university structure are **Engineering, Medicine,, and Agriculture**.
- The departments of Biology, Chemistry, **Mathematics**, and Physics constituted the Faculty of Science at the time of HSIU's establishment in 1962.
- **Haileselassie I University (HSIU)** was officially inaugurated in December 1962.
- **Professor Alemayehu Haile** (Ato Alemayehu Haile at the time) gave a speech at the inauguration representing the faculty or teaching staff.



MATHEMATICS AS AN EMERGING FIELD OF STUDY



- The **Department of Mathematics** was formally established in **1961**, after the University College of Addis Ababa began offering a **Bachelor of Science degree in Mathematics** in 1959.
- Among the first 5 graduates with a Bachelor of Science degree in Mathematics & Physics in **1962** were **Abiy Kifle** and **Ayenew Ejigu**.
- **Alemayehu Haile** became the **first Ethiopian Head** of Department of Mathematics in **1962**.
- **Alemayehu Haile** also initiated the establishment of a **Statistics Section** in 1961 within the Department with the support of **UNESCO** and the University's administration recognizing the growing importance of data analysis in scientific and social research.
- First formal mathematics curriculum revision was conducted in the mid 1960s to modernize the curriculum and align course offerings with global trends (Introduction of Set Theory).
- A more comprehensive curriculum revision took place in **1970**, anticipating new cohorts trained under the “**Entebbe Mathematics**” initiative—a regional modernization effort in mathematics education across East Africa.

ADVANCING MATHEMATICS AWARENESS & EDUCATION



The *HISAB* journal was first established in 1964 under the initiative of the staff of the Department of Mathematics at Addis Ababa University (AAU).



Its goal was to create a platform for communication among Ethiopians interested in math and to promote the study and appreciation of mathematics in schools throughout the country.



Pioneering editors of the journal were:

Alemayehu Haile: 1964–1966

J.D. Marshall: 1966–1967

Bisrat Dilnesahu: 1967–1968



Alemayehu Haile and **Worku Molla** of HSIU, **Alebachew Tiruneh** and **Girma Mengistu** of Ministry of Education served on the Editorial Board from 1974 – 1982.

A journal
of
Mathematic
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Published
jointly by
the
Ministry of
Education



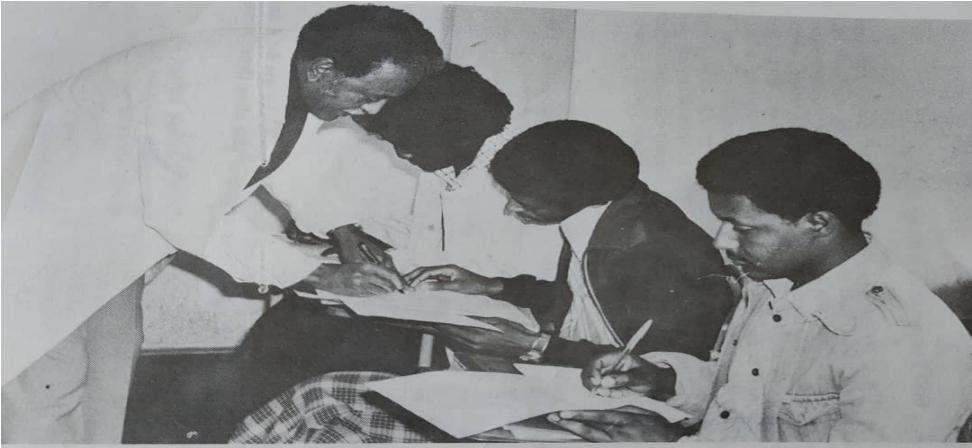
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STRENGTHENING ETHIOPIAN TEACHING STAFF



- One of the significant contributions of Alemayehu Haile to the department and HSIU was the effort he put into bringing more Ethiopians into the teaching staff.
- By late 1960s and early 1970s several Ethiopians received their master's and doctoral degrees in mathematics with support from the **African Graduate Fellowship Program (AFGRAD)** and **Swedish International Development Agency (SIDA)**.
- Notable examples are:
 - ❖ **Abiy Kifle**; M.Sc. - University of Connecticut (1965) and PhD - Uppsala University (1969).
 - ❖ **Alemayehu Haile**; PhD in Mathematical Statistics - Southern Methodist University (1972).
 - ❖ **Seyoum Getu**; M.Sc. - University of Michigan (1966) and PhD - University of Missouri (1973).
 - ❖ **Bisrat Dilnesahu**; M.Sc. – University of California at Los Angeles (1966).
 - ❖ **Yehualashet Mengesha**; M.Sc. in Statistics - University of Illinois (1973).
 - ❖ **Demissu Gemedo**; PhD – Brandeis University (1976).
 - ❖ **Teklehaimanot Retta**; PhD – Wesleyan University (1977).

MATHEMATICAL HISTORY

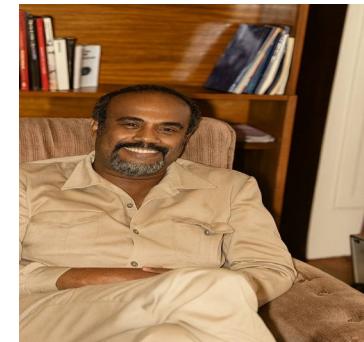
Alemayehu Haile – First Ethiopian to obtain a B.Sc. degree in mathematics; Greenville College of Illinois (1952) and M.Sc. degree in mathematics; University of Chicago (1954).



Yehualashet Mengesha – First Ethiopian female to obtain a B.Sc. degree in mathematics; HSIU (1970).



Abiy Kifle – First Ethiopian to obtain a PhD in mathematics; Uppsala University (1969).



MATHEMATICAL HISTORY

Yehualashet Mengesha – The first woman hired by the department and served as a lecturer from 1974 to 1979.



Kbenesh W. Blayneh received her B.Sc. degree in mathematics in 1982 and became the first woman hired as a graduate assistant in the department. She received her M.Sc. degree in mathematics from AAU in 1985 and PhD in mathematics from University of Arizona in 1996.



Yirgalem Tsegaye completed her PhD in Mathematics, specializing in Combinatorics, at the University of Florence, Italy, in 1996 and became the first woman with a PhD to be employed by the department in 1997.



MATHEMATICAL HISTORY



Atsede Tesfaye is the first female to receive MSc degree in Mathematics (1983) from Addis Ababa University. She went on to receive her MBA from Open University in 2003 and her PhD in Entrepreneurship in 2018 from Tilburg University in the Netherlands.



Dr. Atsede Tesfaye



Addisalem Abathun earned her PhD in Mathematics in 2016 through a sandwich program between Addis Ababa University and Stockholm University, becoming the first woman to graduate with a PhD from the Department of Mathematics at AAU. In 2019, Dr. Addisalem was appointed Dean of the College of Natural and Computational Sciences, making her the first female dean in the College's 75-year history, a role she served in until 2022.



Dr. Addisalem Abathun

EXEMPLARY LEADERSHIP AT ADDIS ABABA UNIVERSITY

- Bisrat Dilnesahu was appointed Dean of the Faculty of Science in 1978 after serving as chair of the Department of Mathematics from 1976 to 1978.
- His tenure as Dean of Faculty of Science began with offering master's degree programs in Biology, Chemistry, and Geology in 1978. These graduate programs are among the first to be offered by Addis Ababa University.
- During his tenure, the Faculty of Science experienced a period of remarkable growth. Additional graduate programs, **Mathematics** in 1980; **Statistics** in 1982; and **Physics** in 1983, were launched under his leadership.
- Even though the Ethiopian government was aligned with the Eastern bloc countries at the time, Dean Bisrat managed to have expatriate teaching staff from other countries through bilateral agreements.
- Dean Bisrat was respected not only as a capable administrator but also as a **dedicated scholar and avid reader**. Upon his passing, his family honored his intellectual legacy by donating over **2,000 books** from his personal collection to the Department and College libraries.



EXPANSION OF GRADUATE EDUCATION AT ADDIS ABABA UNIVERSITY

- Members of the mathematics department played a leading role in the expansion of graduate programs at Addis Ababa University throughout 1980s and 1990s.
- Dr. Demissu Gemedu was appointed Dean of the School of Graduate Studies in 1987 and served as Director of Research & Publication office of the university in mid 1990s.
- Under Dr. Demissu's leadership the university started joint sandwich **Ph.D. programs**, laying the foundation for advanced scientific research at Addis Ababa University.
- A scholar of remarkable depth and a steady leader, Dr. Demissu contributed profoundly to the expansion of graduate education and building research capacity in Ethiopia.



MATHEMATICS DEPARTMENT & COMPUTER SCIENCE EDUCATION AT ADDIS ABABA UNIVERSITY

- There were only a handful of mainframe computers in Ethiopia in 1980s and they were used mainly for processing payroll and some government data analysis.
- Department of Mathematics at Faculty of Science and some programs in the Faculty of Technology started offering FORTRAN programming language courses around 1984.
- Students taking these courses had to go to the Data Processing Center at Sidist Kilo early in the morning and wait in line to use the punch card on IBM mainframe computer.
- Some mainframe applications, especially in COBOL and FORTRAN, were designed around card-oriented input.



MATHEMATICS DEPARTMENT & COMPUTER SCIENCE EDUCATION AT ADDIS ABABA UNIVERSITY



- The appointment of **Dr. Abiy Kifle** as the President of Addis Ababa University in 1985 along with the capable **leadership and advocacy of Dean Bisrat Dilnesahu and Professor Alemayehu** played significant role in bringing Computer Science education to the Department of Mathematics just like what was done for Statistics education in the 1960s.
- Two Personal Computer Labs (one with IBM PCs and the other with Apple Macintosh PCs) were established in the department with support from French government in 1986.
- The cooperation agreement between Addis Ababa University and the French government provided three French nationals with expertise in Computer Science to support the expansion of Computer Science education and **opportunities for young staff members to receive graduate training at universities in France**.
- In addition to offering computer programming courses, the department established a **Computer User's Certificate program** to provide practical training in data processing and computing tools for professionals and individuals interested in emerging computer technology.
- The revenue generated from these programs, supplemented by government support, led to the construction of a **Computer Science annex** in 1990 and the creation of a **Diploma in Computer Science** program.
- The **Bachelor of Science degree in Computer Science** was launched in 1993 under the Department of Mathematics.



HiLCoE

School of Computer Science and Technology

LEADERSHIP AT ADDIS ABABA UNIVERSITY IN MID 1980S



Dr. Demissu Gemeda
Dean of School of Graduate Studies



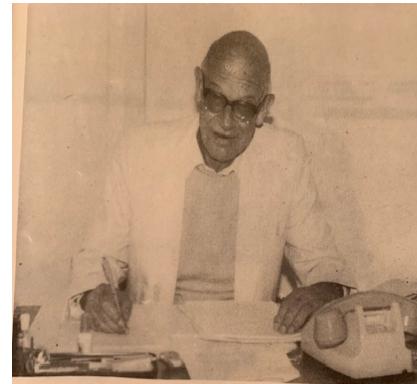
Dr. Abiy Kifle
President of AAU



Ato Bisrat Dilnesahu
Dean of Faculty of Science



Professor Alemayehu Haile
Head of Department of Mathematics

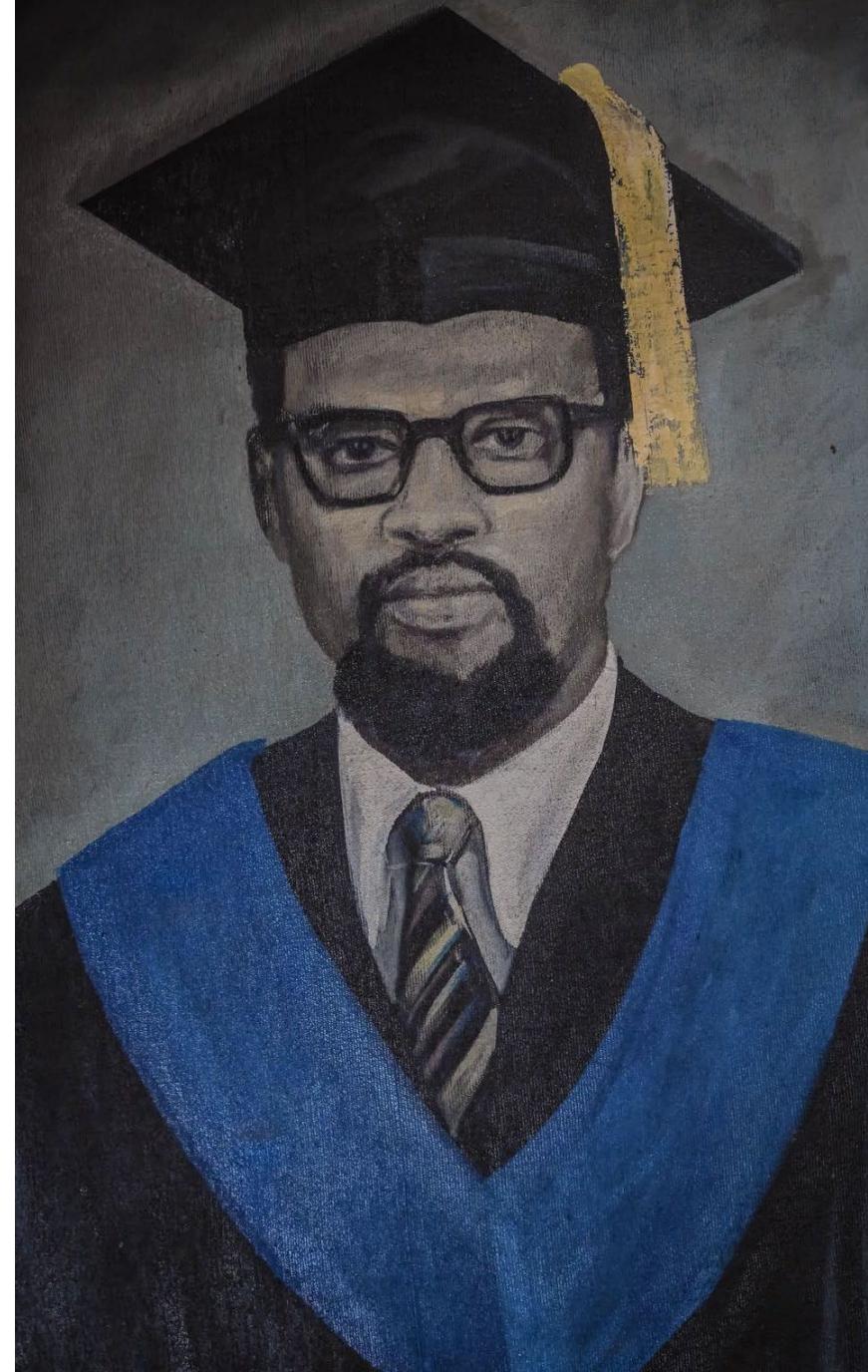


Mr. J.D. Marshall
Associate Dean of Faculty of Science

1985 – 1991: A MATHEMATICIAN AT THE HELM OF AAU

Academic & Program Expansion

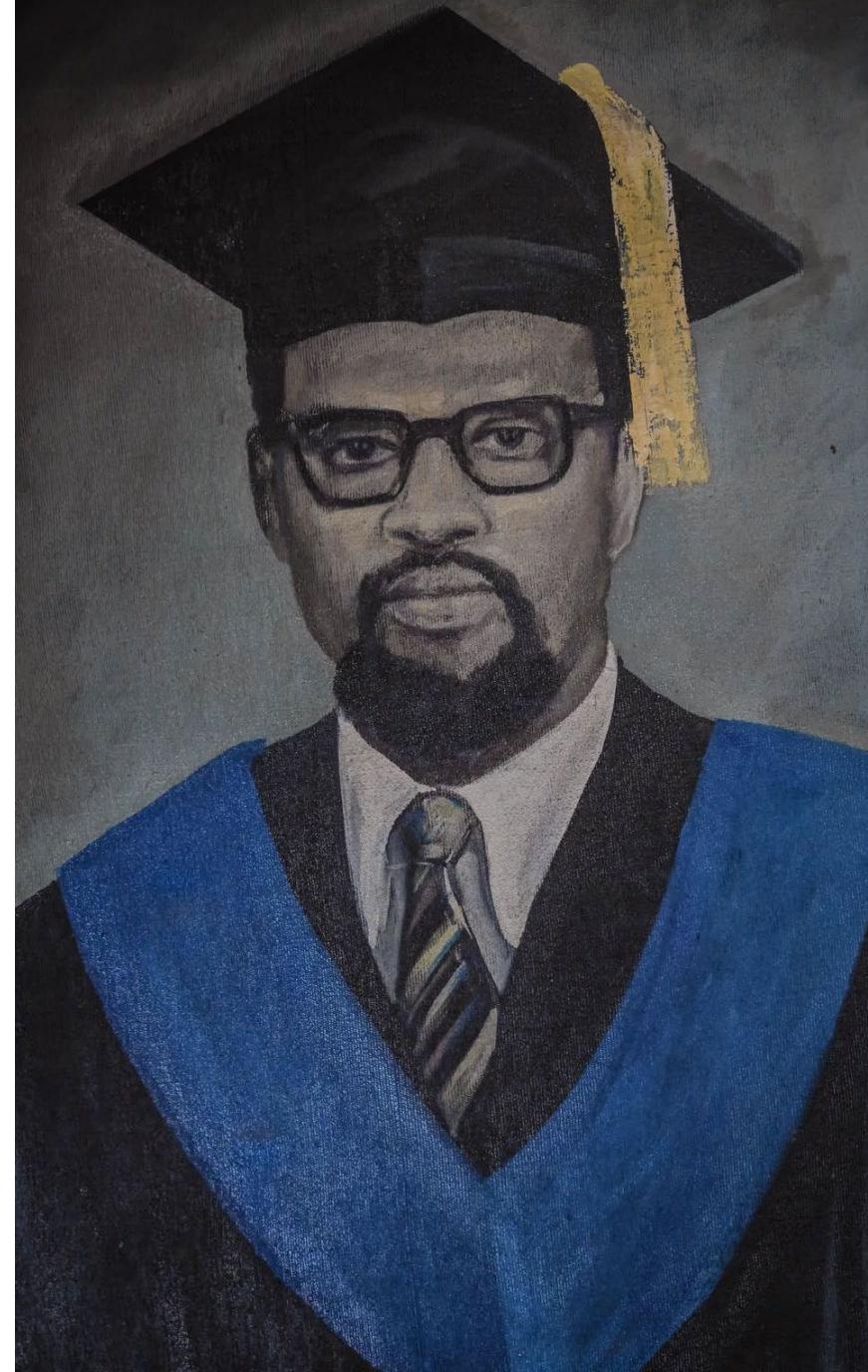
- Expanded **graduate programs** across social sciences, natural sciences, and engineering.
- Strengthened the **School of Graduate Studies** with increased enrollment and structured research pathways.
- Enhanced **professional programs** in Education, Public Health, and Business & Economics.
- Introduced more **specialized tracks** within existing professional fields.
- Broadened **science and technology programs**, including advanced laboratory-based training.
- Expanded engineering streams with **updated curricula** and greater emphasis on practical application.



1985 – 1991: A MATHEMATICIAN AT THE HELM OF AAU

Institutional Strengthening & Capacity Growth

- Strengthened major research institutes, including the **Institute of Ethiopian Studies** and **Institute of Development Research**.
- Expanded **faculty development**, with increased postgraduate training and clearer academic promotion pathways.
- Improved **library and learning resources**, including expanded collections and better access to international journals.
- Enhanced academic support units such as **documentation and resource centers**.
- Increased **international collaborations** that supported curriculum modernization and joint research initiatives.



MEMBERS OF THE DEPARTMENT AT OTHER UNIVERSITY LEADERSHIP POSITIONS

In addition to serving as Chair of Department of Mathematics (1987 – 1992), member of Faculty of Science Academic Commission, and the University Senate, **Dr. Yismaw Alemu** served as **University Registrar** from **1999 to 2001** and led the effort to modernize the registrar system.

Dr. Yismaw was a very disciplined and hardworking person and his appointment to lead the registrar's office was an excellent choice.

Two other members of the Mathematics Department, **Tekie Assehun** and **Berhanu Simegne**, served as **Associate Registrar** of the university in the late 1980s and early 1990s.

Dr. Demissu Gemedo was serving as **Vice President for Administration and Finance** at the time of his untimely passing in 2008.



CHALLENGES AND OPPORTUNITIES

- Mid 1990s and early 2000s were very challenging times for the department. Some of these challenges were:
 - Declining international assistance.
 - Young faculty who did not return after studying abroad.
 - The deaths of several senior faculty members.
- The **higher education reform** introduced by the Ethiopian government after **2005**, which included the rapid expansion of public universities, created an urgent need for qualified academic staff nationwide.
- The Mathematics Department responded by strengthening its **M.Sc. program** and initiating the development of an in-house **Ph.D. program** to train future university faculty.



CHALLENGES AND OPPORTUNITIES

- With extensive preparation and the support of alumni and international collaborators, the **PhD program in Mathematics** officially began in 2010.
- The program covers diverse research areas, including **Algebra, Analysis, Combinatorics & Graph Theory, Number Theory, Optimization, and Partial Differential Equations**.
- Over 50 students** completed their doctoral studies so far and they are serving at **22 different institutions** in the country.
- It is important to recognize **the leadership of Dr. Berhanu Guta and his colleagues** in launching the PhD program in Mathematics at Addis Ababa University.
- Professor Shiferaw Berhanu** played a vital role from the very beginning with the development of the PhD program and inspired fellow Ethiopian mathematicians in the diaspora to support the program.

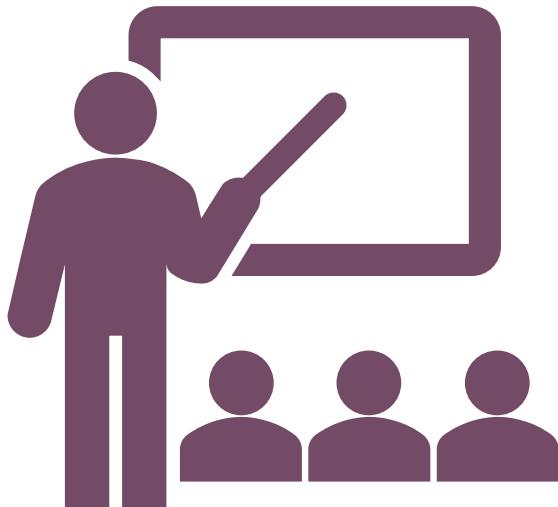


Dr. Berhanu Guta



Professor Shiferaw Berhanu

RESPONSIBILITY TO CARRY ON THE LEGACY OF OUR PIONEERS



- ❖ Over the past 75 years, these pioneers and their colleagues expanded programs, modernized curricula, and built strong partnerships that strengthened Ethiopia's mathematical and scientific capacity.
- ❖ Today in 2025, the Department of Mathematics stands as a cornerstone of Addis Ababa University, distinguished by its PhD and other programs, scholarly contributions, and sustained role in training educators, researchers, and professionals vital to national development.
- ❖ *Those of us who have had the privilege of knowledge bear a heavy responsibility to serve our society."*

Abiy Kifle, 1989 Commencement Speech