

Overview of The Addis Ababa  
University (AAU)  
and  
The Department of Chemistry

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# Overview of AAU

- ✓ AAU is a pioneer Higher Education Institute (HEI) in Ethiopia, **established in 1950**.
- ✓ The University has **seventy years of excellence** as leading institutions in teaching-learning, research, and community engagement.
- ✓ Over **222,000 students have graduated** since establishment.
- ✓ Recently, AAU has become the **1<sup>st</sup> Autonomous Public University** in Ethiopia

# Overview of AAU

## STUDENTS

- 47,873 students
- ✓ 10% PhD.
- ✓ 28% Masters
- ✓ 62 % UG programs

## COLLEGES AND INSTITUTES

- ✓ 10 colleges,
- ✓ 2 technology institutes and
- ✓ 11 research institutes
- ✓ 10 center of excellences



## STAFF

**8,762 staff**

- ✓ 2,987 academic staff,
- ✓ 138 technical assistants,
- ✓ 4,497 administrative and
- ✓ 1,202 health professionals

## ACADEMIC PROGRAMS

- ☐ 73 undergraduate
- ☐ 366 graduate programs
  - ✓ 96 PhD,
  - ✓ 210 Masters' and
  - ✓ 60 specialty and sub-specialty.

# Colleges of AAU

1. College of Social Sciences
2. College of Humanities, Language Studies, Journalism and communication
3. College of Development Studies
4. College of Business and Economics
5. College of Law and Governance Studies
6. College of Education and Behavioral Studies
7. College of Natural and Computational Sciences
8. Skunder Boghossian College of Performing and Visual Arts
9. College of Veterinary Medicine and Agriculture
10. College of Health Sciences

# Schools At AAU

1. Alle School of Fine Arts and Design
2. School of Allied Health Sciences
3. School of Commerce
4. School of Earth and Planetary Sciences
5. **School of Information Science**
6. School of Journalism and Communications
7. School of Medicine
8. School of Pharmacy
9. School of Public Health
10. School of Social Work
11. Yared School of Music
12. Yoftahe Nigussie School of Theatrical Arts

# Research and Teaching Institutes

1. Academy of Ethiopian Languages and Cultures
2. Addis Ababa Institute of Technology
3. Aklilu Lemma Institute of Pathobiology
4. Ethiopian Institute of Architecture, Building Construction and City Development
5. Ethiopian Institute of Water Resources
6. Institute of Biotechnology
7. Institute of Educational Research
8. Institute of Ethiopian Studies
9. Institute of Geophysics, Space Science and Astronomy
10. Institute of Peace and Security Studies
11. Academy of Ethiopian Languages and Cultures
12. Horn of Africa Regional Center and Environment Network

# College of Natural and Computational Sciences (CNCS)

- ▶ Currently, the College comprises eight departments, two schools, two institutes, and three multidisciplinary programs offering undergraduate and postgraduate degrees.
- ▶ The College has a Dean and three Associate Deans (Associate Dean for Graduate Programs, Associate Dean for Undergraduate Programs, and Associate Dean for Research and Technology Transfer).

# Departments, Schools, Centers and Program Units of the College

- Biotechnology, Institute
- **Chemistry, Department**
- Computational Science, Program Unit
- Computer Science, Department
- School of Earth Sciences
- Center for Environmental Science
- Center for Food Science and Nutrition
- **School of Information Science**
- Materials Science Program Unit
- Department of Mathematics
- Department of Microbial, Cellular and Molecular Biology
- Department of Physics
- Department of Plant Biology and Biodiversity Management, Sport Science
- Department of Statistics
- Department of Zoological Sciences



# The Chemistry Department

- ▶ Then the Department is one of the largest Departments in the College of Natural Sciences
- ▶ The Department runs the following programs
  1. **B.Sc. Degree Program in Chemistry**
  2. **M.Sc. Degree Program in Chemistry**  
  
With Specialization in Analytical, Inorganic, Organic and Physical Chemistry
  3. **Ph.D. Degree Program in Chemistry**  
  
With Specialization in Analytical, Inorganic, Organic and Physical Chemistry
  4. **MSc. and PhD in Material Science**

# Full-time Staff

- ▶ **25 (19 PhD and 6 MSc )**
  - ▶ **7 Full Professors**
  - ▶ **8 Associate Prof.**
  - ▶ **4 Asst. Prof, and**
  - ▶ **6 Lecturers**
- ▶ **Laboratory Technicians - 10**

# Research Areas

- Environmental Chemistry
  - Pesticide residue in the environment
  - Heavy metals distribution in in the environment
  - Air pollution and health risk assessment
  - Water purification technologies
  - Water pollution
  - Waste water treatment technologies/materials
  - Converting cafeteria waste to valuable products
  - Biofuel from algae

# Research Areas

## Physical Chemistry

- Zeolite of Ethiopia: Application for the chemical industry
- Electrochemical energy conversion: batteries and fuel cells
- Computational Electrochemistry
- Optical-Spectral analysis for investigation of anomalous fluorescence phenomena
- High pressure thermodynamics of fluids
- Supercritical fluids and supercritical fluid technology

# Research Areas

## ► Organic Chemistry

- Synthesis of conjugated polymers
- Electrochemistry/Spectroelectrochemistry/photochemistry of Conducting Polymers
- Organic solar energy conversion based on conjugated polymers
- Natural products chemistry
- Chemically investigation of the essential oils of aromatic plants of Ethiopia

# Research Areas

## Inorganic/Material Science

- Synthesis, structural studies and applications of coordination compounds
- Conversion of naturally oxidized oils into new performance materials
- Green and sustainable chemistry

# Research Areas

## ► Analytical Chemistry

- Chemical modified electrodes
- Sensors and biosensors
- Spectroscopy of dynamic and equilibrium systems
- Design of spectroscopic methods for analytical applications
- Environmental analytical chemistry

# Lab Equipments

## ▶ Major Equipments

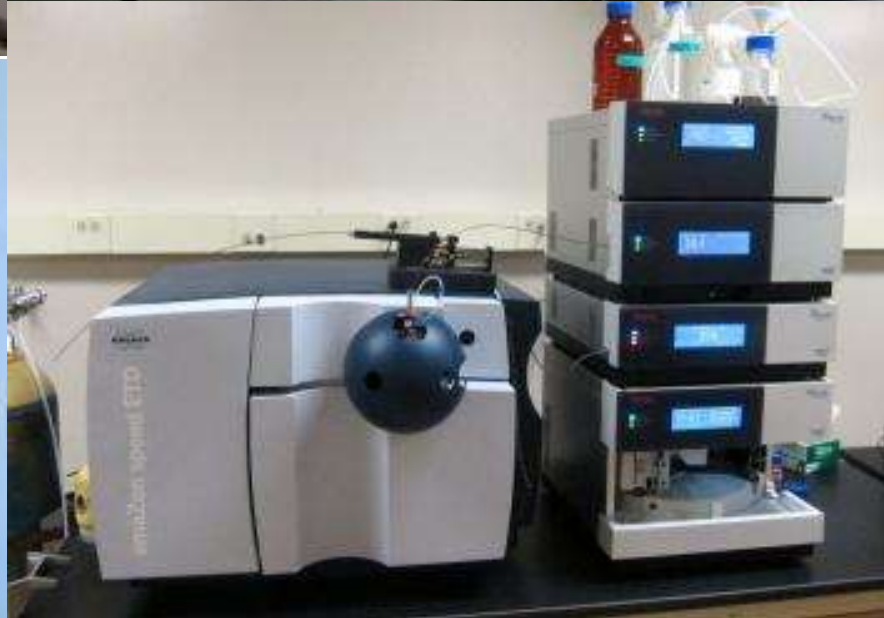
- ▶ 400 MHz NMR Spectrometer,
- ▶ GC-MS
- ▶ LC-MS
- ▶ GCs
- ▶ HPLCs
- ▶ FTIR
- ▶ Powder XRD
- ▶ TOC Analyzer
- ▶ ICP-OES
- ▶ Elemental Analyzer (C,H, N, S)

## ▶ Others

- ▶ Polarimeter, UV-Vis spectrometers, XRD, MPLC apparatus, AAS, Atomic Emission Spectroscopy, Polarographs, Electrochemical analyzers, Voltammetric analyzer, Apparatus for flow injection analysis, Bi-potentiostat, Galvanostats, Supercritical Fluid Extractor, MSB-MK1 Magnetic Susceptibility Balance, Spectrofluorometer-Fully PC based, Edward Auto 306 vacuum Coater with diffusion pumping system, ECoChem, BAS, CHI Electrochemical systems, Model P-6708D 8” Desktop Precision Spin coating system, Oriel Optical Bench with power house lamp housing, Monochromater for Solar energy device characterization, and other equipments



# Teaching and Research Through State-of-the Art Laboratory Facilities





# Teaching and Research Through State-of-the Art Laboratory Facilities



SO/IEC 17025 Certification  
for  
Testing and calibration  
laboratories





# Transformed Learning-Teaching Environment Through High-Tech ICT Infrastructure

High Quality Video Conferencing Facility

3 Smart Teaching Classrooms

2 Smart Computational laboratories



# Strengths

- ▶ Environmental Chemistry
- ▶ Energy Conversion Technology
- ▶ Water Purification
- ▶ Electrochemistry
- ▶ Material science
- ▶ Computational Chemistry
- ▶ Polymer Chemistry
- ▶ Natural Product Chemistry