



# PAN AFRICAN UNIVERSITY

Institute For Basic Sciences,  
Technology And Innovation



# 10<sup>th</sup>

## Graduation Ceremony

DATE:

**28<sup>TH</sup> JUNE 2024 at 0800HRS**

VENUE:

**GRADUATION SQUARE ~ JKUAT MAIN CAMPUS / VIRTUAL**

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## **THE DIRECTOR**

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## VISION

The strategic vision of the Pan African University is to develop institutions of excellence in science, technology, innovation, social sciences and governance, which would constitute the bedrock for an African pool of higher education and research.



## MISSION AND SCOPE

To realize the strategic vision, six missions have been defined for the Pan-African University:

1. Develop continental-wide and world-class graduate and post-graduate programmes in science, technology, innovation, human and social sciences;
2. Stimulate collaborative, internationally competitive, cutting-edge fundamental and development oriented research, in areas having a direct bearing on the technical, economic and social development of Africa;
3. Enhance the mobility of students, lecturers, researchers and administrative staff between African universities to improve on teaching, leadership, and collaborative research;
4. Contribute to the capacity building of present and future African Union stakeholders;
5. Enhance the attractiveness of African higher education and research institutions for effective development and retention of young African talent, while attracting the best intellectual capital from across the globe, including the African Diaspora;
6. Invigorate dynamic and productive partnership with public and private sectors.

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## REPRESENTATIVES OF AU COMMISSION

**AUC Commissioner, ESTI**  
Prof. Mohammed Belhocine

**Director ESTI**  
Prof. Saidou Madougou

## OFFICERS OF THE UNIVERSITY - PAU

**President of Council**  
Prof. Kenneth Matengu

**Vice President of Council**  
Prof. Amany Abdallah El-Sharif

**Rector**  
Prof. Jean Koulidiati

**Vice-Rector, Academic and Student Affairs**  
Pr. Bolanle Akeredolu Ale

**Ag. Director, PAUSTI**  
Prof. Turoop Losenge

**Director, PAUGHSS**  
Prof. Elizabeth Abenga

**Ag. Director, PAULESI**  
Prof. Oladunjoye Michael Adenyinka

**Director, PAUWES**  
Prof. Abdellatif Zerga

**Registrar (PAUSTI)**  
Dr. Jane M. Ng'ethe

**Program Coordinator, Mathematics**  
Dr. Joseph Mung'atu

**Program Coordinator, Civil Engineering**  
Dr. Charles Cheruiyot

**Program Coordinator, Electrical Engineering**  
Prof. Kibet Lang'at

**Program Coordinator, Molecular Biology and Biotechnology**  
Prof. Fred Wamunyokoli

**Program Coordinator, Mechanical/ Mechatronic Engineering**

Dr. Rehema Denda

**Examination Officer & Research Coordinator**

Prof. George Nyakoe

**Laboratory In-Charge, Molecular biology and Biotechnology**

Dr. Florence Ngong'a

**HOST UNIVERSITY OFFICERS**

**Chancellor**

Prof. Joseph Mathu Ndung'u, BCM(Nairobi), PhD (Glasgow),  
CorrFRSE

**Chairman of Council**

Dr. Micah Onsando

**Vice Chancellor**

Prof. Victoria W. Ngumi, B.Ed. (Nairobi), M.Sc. (Hiroshima), Ph.D.  
(Clemson), EMBA (JKUAT)

**Deputy Vice Chancellor, Academic Affairs**

Prof. Robert Kinyua, BSc, MSc (Nairobi), PhD (Osaka)

**Deputy Vice Chancellor, Administration**

Prof. (Eng.) Bernard W. Ikua, BSc (Nairobi), MSc, PhD (Tottori)

**Deputy Vice Chancellor RPE**

Prof. Jackson K. Kwanza, B.Ed, MSc (Kenyatta), PhD (JKUAT)

**Registrar, Academic Affairs**

Dr. Aggrey Wanyama

# PAUSTI GRADUANDS

## DOCTOR OF PHILOSOPHY

The Director, PAUSTI will rise and present the following candidates for the conferment of the degree of Doctor of Philosophy. The candidates will be escorted by the supervisors to the dias and kneel in front of the chancellor and remain kneeling until the chancellor has conferred the degree by saying:

*"I admit you to the degree of Doctor of Philosophy and by my authority and that of the entire University give power to read and do all that appertains to this degree."*

The graduands will then rise, curtsy /bow and resume their seats

### Doctor of Philosophy in Mathematics (Computational Option)

#### 1. Achimugwu Peter Urane

Nigeria

**TITLE OF THESIS:** A Mathematical Model on Climate Change Induced by Excessive Emission and Accumulation of Carbon Dioxide with Optimal Cost-Effectiveness.

#### SUPERVISORS

- I. Prof. Mathew N. Kinyanjui
- II. Prof. David M. Malonza

#### 2. Malede Atnaw Belay

Ethiopia

**TITLE OF THESIS:** Mathematical Model for the Evolution and Co-Infection of Bacterial Meningitis and Hepatitis B Diseases with Optimal Control

#### SUPERVISORS

- I. Prof. Jeconia Okelo Abonyo
- II. Prof. David Mwangi Theuri

#### 3. Bilali Mataru

Tanzania

**TITLE OF THESIS:** Mathematical Model for Crime and Poverty due to Unemployment with Optimal Control.

## **SUPERVISORS**

- I. Prof. Jeconia Okelo Abonyo
- II. Prof. David Malonza

### **4. Kiptum Purity Jebotibin**

**Kenya**

**TITLE OF THESIS:** A study of Entropy Generation in a Fluidized Bed Dryer in Tea Processing with Heat and Mass Transfer in Presence of Chemical Reaction and Induced Magnetic Field.

## **SUPERVISORS**

- I. Prof. Mathew N. Kinyanjui
- II. Dr. Edward Richard Onyango

## **Doctor of Philosophy in Mathematics (Financial Option)**

### **1. Elias Kimani Karuiru**

**Kenya**

**TITLE OF THESIS:** Ann-Time Varying Garch Model for Processes with Fixed and Random Periodicity

## **SUPERVISORS**

- I. Prof. J. M. Kihoro
- II. Dr. Thomas Mageto
- III. Prof. A. G. Waititu

### **2. Abdulmaliki Aruna**

**Tanzania**

**TITLE OF THESIS:** Robust Portfolio Optimization in Informationally Inefficient Markets

## **SUPERVISORS**

- I. Dr. Ananda Kube,
- II. Prof. Philip Ngare

### **3. Matabel Odin Odiaga**

**Kenya**

**TITLE OF THESIS:** Pricing Bermudan Call Options in Incomplete Markets for an Asset Driven by Lévy Random Bridge Information Process

## **SUPERVISORS**

- I. Dr. Jane Akinyi Aduda
- II. Dr. Cyprian Ondieki Omari



#### 4. John Abonongo

Ghana

**TITLE OF THESIS:** Trigonometric Extensions of Some Heavy Tailed Family of Distributions

#### SUPERVISORS

- I. Prof. Joseph Ivivi Mwaniki
- II. Dr. Jane Akinyi Aduda

#### 5. Patrick Chidzalo

Malawi

**TITLE OF THESIS:** Multivariate Model for Pricing Weather Derivatives

#### SUPERVISORS

- I. Prof. Philip O. Ngare
- II. Dr. Joseph K. Mung'atu

#### 6. Agnella Nemuo Mandia

Tanzania

**TITLE OF THESIS:** Estimation of Retention Threshold and Effects of Peers Dependence in Decentralized Insurance Schemes

#### SUPERVISORS

- I. Prof. Patrick Guge Oloo Weke
- II. Dr. Joseph Kyalo Mung'atu

#### 7. Noumegni Kenmoe Marcelin Romeo

Cameroon

**TITLE OF THESIS:** Estimation of the Gerber-Shiu Function when Surplus is Modeled as a Perturbed Compound Poisson Risk Model with a Constant Barrier Strategy

#### SUPERVISORS

- I. Dr. Jane Akinyi Aduda
- II. Prof. Mbele Bidima Martin Le Doux

### Doctor of Philosophy in Mathematics (Statistics Option)

#### 1. Anne Wanjira Ndung'u

Kenya

**TITLE OF THESIS:** Bayesian Mixed Model with Hierarchical Penalized Spline

#### SUPERVISORS

- I. Prof. Samuel Mwalili
- II. Prof. Leo Odongo

## 2. Beatrice Amin Njau

Tanzania

**TITLE OF THESIS:** Bayesian Estimation of Frailty Hazard Mixture Cure Model for Long-term Cancer Survivors

### SUPERVISORS

- I. Prof. Samuel Mwalili
- II. Prof. George Orwa

## 3. Nizeyimana Ildephonse

Rwanda

**TITLE OF THESIS:** An Alternative Test and Censoring Balancing Functions for the Comparison of Survival Curves

### SUPERVISORS

- I. Prof. Samuel Musili Mwalili
- II. Prof. George Otieno Orwa

## 4. Veronica Waithira Kariuki

Kenya

**TITLE OF THESIS:** Extended Alpha Power Family of Distributions; Properties and Applications

### SUPERVISORS

- I. Dr. Antohny Wanjoya
- II. Dr. Oscar Ngesa
- III. Prof. Ahmed Afify

## Doctor of Philosophy in Electrical Engineering (Telecommunication Option)

### 1. Antony Ochieng Onim

Kenya

**TITLE OF THESIS:** Design and Analysis of a Neural Network Model for Dynamic Thresholding and Frequency Allocation in Long-Term Evolution Fractional Frequency Reuse

### SUPERVISORS

- I. Prof. Stephen Musyoki
- II. Dr. Peter Kamita Kihato

### 2. Joseph Sospeter

Tanzania

**TITLE OF THESIS:** Performance Optimization and Evaluation of Terrestrial Digital Audio Broadcasting System in the Presence of Analogue FM Broadcasting.

## **SUPERVISORS**

- I. Prof Elijah Mwangi
- II. Prof Nerey Mvungi

### **3. Aminata Dembele**

**Mali**

**TITLE OF THESIS:** A Novel Model for Detecting Distributed Denial of Service Attack in Software-Defined Networking using Artificial Intelligence Techniques.

## **SUPERVISORS**

- I. Prof. Elijah Mwangi
- II. Prof. Edwin O. Ataro

## **Doctor of Philosophy degree in Electrical Engineering (Power System Option)**

### **1. Engidaw Abel Hailu**

**Ethiopia**

**TITLE OF THESIS:** Assessment and Enhancement of Static Security of Multi-Area Power System Using Artificial Intelligence Techniques

## **SUPERVISORS**

- I. Prof. George N. Nyakoe
- II. Prof. Eng. Christopher M. Muriithi

## **Doctor of Philosophy degree in Civil Engineering (Structural Option)**

### **1. Babatunde Olawale Yusuf**

**Nigeria**

**TITLE OF THESIS:** Experimental, Numerical, and Analytical Investigations of the Effect of Material Compositions on the Behaviour of Waste Plastic Binder Composite for Paver and Other Construction Blocks

## **SUPERVISORS**

- I. Prof. John Mwero
- II. Prof. Raphael Mutuku
- III. Prof. Yinusa Jimoh

## 2. Marwa Gumma Omer Adam

Sudan

**TITLE OF THESIS:** Experimental and Numerical Investigations of the Effect of Cassava Flour on the Interfacial Transition Zone Microstructure and Thickness, Mechanical and Durability Properties of High Strength Concrete at Mesoscale Level.

### SUPERVISORS

- I. Prof. David Otieno Koteng'
- II. Dr. Eng. Joseph Ng'ang'a Thuo
- III. Prof. Eng. Mohammed Matallah

## Doctor of Philosophy degree in Molecular Biology and Biotechnology

### 1. Beatrice Muthoni Gachie

Kenya

**TITLE OF THESIS:** Evaluation of Nfs1 and Sufs Cysteine Desulfurase Genes in Lumefantrine, Piperaquine and Amodiaquine Resistance in Plasmodium Berghei and Plasmodium Falciparum Parasites

### SUPERVISORS

- I. Prof. Gabriel Magoma
- II. Dr. Daniel Kiboi

### 2. Niyomukiza Samuel

Rwanda

**TITLE OF THESIS:** Bioprospecting for Hydrolases from Bacteria Isolated from Food Wastes and Their Application in Bioproducts Processes

### SUPERVISORS

- I. Prof. Willis Owino
- II. Prof Julius Maina Mathara
- III. Prof Naomi Maina

### 3. Mutinda Sylvia Mbula

Kenya

**TITLE OF THESIS:** Genomic Characterization of Durable and Broad-Spectrum Striga Resistance in Sorghum

#### **SUPERVISORS**

- I. Prof. Elijah Ateka
- II. Prof. Steven Runo
- III. Prof. Emily Bellis

### 4. Ndacyayisenga Joseph

Rwanda

**TITLE OF THESIS:** Effect of Catechin Extracts from Camellia Sinensis (Tea) on Chemotherapy Toxicity of Cisplatin in 4T1 Breast Cancer Cell Line and Balb/C Mice

#### **SUPERVISORS**

- I. Prof. Fred Wamunyokoli
- II. Prof. Esther Njoki Mwangi Maina
- III. Dr. Festus M. Tolo

## MASTER OF SCIENCE

The Director, PAUSTI will rise and present the following candidates for the conferment of the degree of Master of Science.

As the Director reads out the names, the candidates will stand and remain standing until the last name is read and the Chancellor has conferred the degree by saying;

*"I admit the persons named to the respective Master degree and by my authority and that of the entire University give power to read and do all that appertains to this degree."*

The graduands will then rise, curtsy/bow and resume their seats

### **MSc in Civil Engineering (Construction Eng. & Management Option)**

- |                                      |            |
|--------------------------------------|------------|
| 1. Abla Marie-Josée Nadège Kougnigan | Togo       |
| 2. Gaoussou Sidibe                   | Mali       |
| 3. Baila Marr                        | Mauritania |
| 4. Denic Mugambi Njeru               | Kenya      |
| 5. Chukwuemeka Daniel                | Nigeria    |
| 6. Promotion Moyo                    | Zimbabwe   |
| 7. Edith Komo Neufville              | Liberia    |
| 8. Maman Oumarou Aboubacar           | Niger      |
| 9. Thomas Berhe Tsegai               | Eritrea    |

### **MSc in Civil Engineering (Environmental & ASAL Option)**

- |                          |       |
|--------------------------|-------|
| 1. Kelvin Mutevu Mwanzia | Kenya |
|--------------------------|-------|

### **MSc in Civil Engineering (Transportation Option)**

- |                              |              |
|------------------------------|--------------|
| 1. Leonardo Z. Wongbae       | Liberia      |
| 2. Essizewa Essowedeou Agate | Togo         |
| 3. Zakaria Mohamed Barrie    | Sierra Leone |
| 4. Akimana Clémentine        | Rwanda       |
| 5. Vihunina Rikambura        | Namibia      |

### **MSc in Civil Engineering (Structural Option)**

- |                                    |              |
|------------------------------------|--------------|
| 1. Tamalgo Bénéwendé Thomas Arnaud | Burkina Faso |
| 2. Abraham Bebe Barmoh             | Liberia      |

- |   |              |
|---|--------------|
| 3. Adam Nice Kangu                      | Malawi       |
| 4. Amanyire Barozi Victoire             | DR Congo     |
| 5. Mamono Grace Loïc Tresor             | Congo        |
| 6. Nkanpa Moffo Ngaelle Dorivice        | Cameroon     |
| 7. Aliyinzá Charity                     | Uganda       |
| 8. Mahunankpon Josué Yamadjako          | Benin        |
| 9. Ouedraogo Abdoul Karim Ameyric Habib | Burkina Faso |
| 10. Munyaneza Jean                      | Rwanda       |
| 11. Emmanuel Benon                      | Ghana        |

### **MSc in Electrical Engineering (Telecommunication Option)**

- |                          |        |
|--------------------------|--------|
| 1. Chimwemwe Emily Kunje | Malawi |
| 2. Nalumansi Moureen     | Uganda |

### **MSc in Electrical Engineering (Computer Engineering Option)**

- |                                   |          |
|-----------------------------------|----------|
| 1. Siame Robert                   | Zambia   |
| 2. Harouna Maloum Abdoul Moumouni | Niger    |
| 3. Neiso Modise Kagiso            | Botswana |

### **MSc in Electrical Engineering (Power System Option)**

- |                             |       |
|-----------------------------|-------|
| 1. Nusiaba Ali Hassan Hamed | Sudan |
| 2. Kabiru Paul Mururia      | Kenya |

### **MSc in Mechatronics Engineering**

- |                          |          |
|--------------------------|----------|
| 1. Daniel Chifisi        | Malawi   |
| 2. Abdoulaye Sidibe      | Mali     |
| 3. Mercy Wangari Mahinda | Kenya    |
| 4. Grace Njeri Wamuti    | Kenya    |
| 5. Paulo Bungi Lubota    | Angola   |
| 6. Admire Chityori       | Zimbabwe |
| 7. Zangui Sabo Ibrahim   | Niger    |

### **MSc in Mechanical Engineering**

- |                                |              |
|--------------------------------|--------------|
| 1. Otieno Edwin Ochieng        | Kenya        |
| 2. Nonkululeko Portia Mdlalose | South Africa |
| 3. Félix Sotohou               | Benin        |

4. Ngenzi Alain	Burundi
5. Kifatsoa Kolani	Togo
6. Kokougan Etonam Amelessodji	Togo
7. Patrick Ssemujju Lubowa	Uganda
8. Zossou Oklunongnon Augustin	Benin
9. Talent Kachomba	Zimbabwe
10. Hidiba Ruth Kebbabe	Chad
11. Meseret Biazen Belete	Ethiopia

### **MSc in Mathematics (Computational Option)**

1. Kafunda Tuesday	Zambia
2. Victor Paulo Kaigalula	Tanzania
3. Valarie Nyakerario Nyabuti	Kenya
4. Benjamin Matur Madit	South Sudan
5. Malontèma Katchali	Togo

### **MSc in Mathematics (Financial Option)**

1. Eric Mwangi Kimani	Kenya
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### **MSc in Mathematics (Statistics Option)**

1. Niyoyunguruza Aurise	Burundi
2. Issah Matinu Abdul	Ghana
3. Moses Kargbo	Sierra Leone
4. Kollie Tina Confort	Guinea
5. Ndayisaba Antoine Dieudonné	Burundi

### **MSc in Mathematics (Data Science Option)**

1. Mamadou Hady Barry	Guinea
2. Mohamed Coulibaly	Mali
3. Duha Mohamed Adam Bakhit	Sudan
4. Akwa Gaius Akwa (Junior)	Cameroon
5. Mahadi Nagassou	Chad
6. Diallo Abdoul Aziz	Guinea

### **MSc in Molecular Biology and Biotechnology**

1. Oumar Dawala Koromtiili	Chad
----------------------------	------



- |  |          |
|--|----------|
| 2. Ombeni Filemon Ally                 | Tanzania |
| 3. Portia Osei-Obeng                   | Ghana    |
| 4. Adedjobi Titilayo Kemi Sophia Nelly | Benin    |
| 5. Nyamaifofe Lokoko Dieudonné         | DR Congo |
| 6. Mishell Chantelle Mahora            | Zimbabwe |
| 7. Hadil Suliman Hussein Adam          | Sudan    |

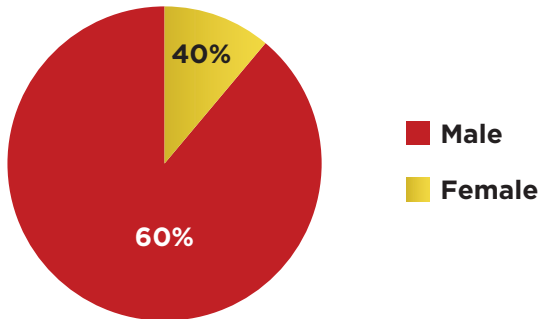
## GRADUATION STATISTICS IN SUMMARY

### Distribution by Programme

#### Doctor of Philosophy

Programme	Male	Female	Total
Mathematics (Computational Option)	3	1	4
Mathematics (Statistics Option)	1	3	4
Mathematics (Financial Option)	5	2	7
Electrical Engineering (Telecommunication Option)	2	1	3
Electrical Engineering (Power System Option)	1	0	1
Civil Engineering (Structural Option)	1	1	2
Molecular Biology and Biotechnology	2	2	4
<b>Total</b>	<b>15</b>	<b>10</b>	<b>25</b>

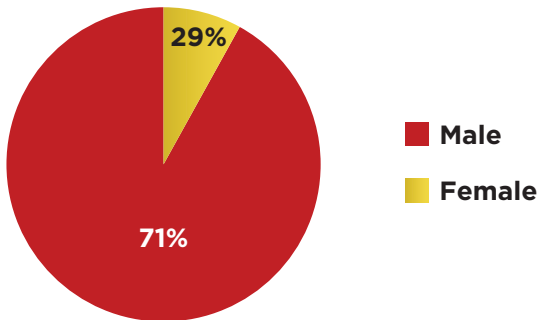
### PhD. Gender Graph



## Master of Science

Programme	Male	Female	Total
Civil Engineering (Construction Eng. & Management)	6	3	9
Civil Engineering (Environmental & ASAL Option)	1	0	1
Civil Engineering (Transportation Option)	4	1	5
Civil Engineering (Structural Option)	10	1	11
Electrical Engineering (Telecommunication Option)	0	2	2
Electrical Engineering (Computer Engineering Option)	3	0	3
Electrical Engineering (Power System Option)	1	1	2
Mechanical Engineering	7	4	11
Mechatronic Engineering	5	2	7
Mathematics (Computational Option)	4	1	5
Mathematics (Statistics Option)	3	2	5
Mathematics (Financial Option)	1	0	1
Mathematics (Data Science Option)	5	1	6
Molecular Biology and Biotechnology	3	4	7
<b>Total</b>	<b>53</b>	<b>22</b>	<b>75</b>

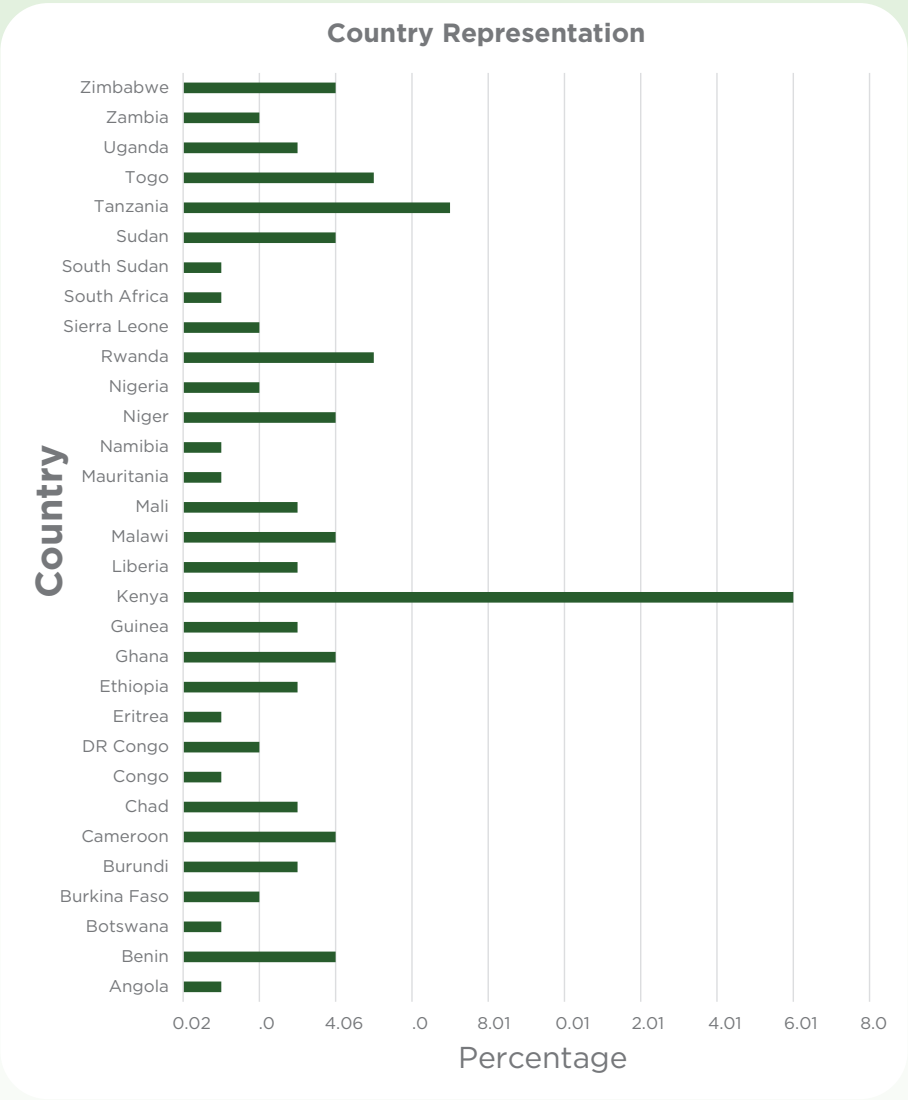
## MSc. Gender Graph



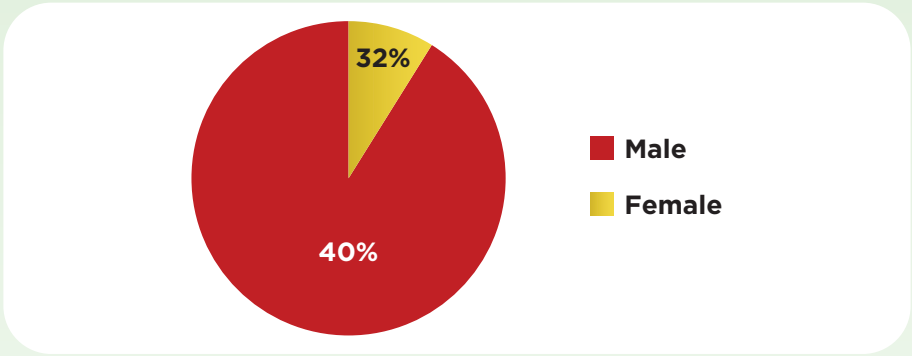
## Distribution by Country

S/No	Country	Male	Female	Total	%
	Angola	1	0	1	1.0
	Benin	3	1	4	4.0
	Botswana	1	0	1	1.0
	Burkina Faso	1	1	2	2.0
	Burundi	2	1	3	3.0
	Cameroon	3	1	4	4.0
	Chad	2	1	3	3.0
	Congo	1	0	1	1.0
	DR Congo	2	0	2	2.0
	Eritrea	1	0	1	1.0
	Ethiopia	2	1	3	3.0
	Ghana	3	1	4	4.0
	Guinea	2	1	3	3.0
	Kenya	7	9	16	16.2
	Liberia	2	1	3	3.0
	Malawi	3	1	4	4.0
	Mali	3	0	3	3.0
	Mauritania	3	0	3	3.0
	Namibia	1	0	1	1.0
	Niger	1	0	1	1.0
	Nigeria	4	0	4	4.0
	Rwanda	4	1	5	5.1
	Sierra Leone	2	0	2	2.0
	South Africa	0	1	1	1.0
	Sudan	0	4	4	4.0
	Tanzania	5	2	7	7.1
	Togo	3	2	5	5.1
	Uganda	1	2	3	3.0
	Zambia	2	0	2	2.0
	Zimbabwe	2	1	3	3.0
	<b>Total</b>	<b>67</b>	<b>32</b>	<b>99</b>	<b>100%</b>

# Distribution by Country Graph



# Total Gender Graph



	Male	Female	Total
Total MSc. & PhD.	68	32	100
Gender %	68.0%	32.0%	100.0%

## AU ANTHEM

Let us all unite and celebrate together  
The victories won for our liberation  
Let us dedicate ourselves to rise together  
To defend our liberty and unity

*O Sons and Daughters of Africa  
Flesh of the Sun and Flesh of the Sky  
Let us make Africa the Tree of Life*

Let us all unite and sing together  
To uphold the bonds that frame our destiny  
Let us dedicate ourselves to fight together  
For lasting peace and justice on earth

*O Sons and Daughters of Africa  
Flesh of the Sun and Flesh of the Sky  
Let us make Africa the Tree of Life*

Let us all unite and toil together  
To give the best we have to Africa  
The cradle of mankind and fount of culture  
Our pride and hope at break of dawn.

*O Sons and Daughters of Africa  
Flesh of the Sun and Flesh of the Sky  
Let us make Africa the Tree of Life*





## **PAUSTI Programmes**

- M.Sc. Molecular Biology & Biotechnology**
- M.Sc. Mathematics (Financial Option)**
- M.Sc. Mathematics (Computational Option)**
- M.Sc. Mathematics (Statistics Option)**
- M.Sc. Mathematics (Data Science)**
- M.Sc. Electrical Engineering (Computer Engineering Option)**
- M.Sc. Electrical Engineering (Telecommunications Option)**
- M.Sc. Electrical Engineering (Power Systems Option)**
- M.Sc. Mechatronic Engineering**
- M.Sc. Mechanical Engineering**
- M.Sc. Civil Engineering (Structural Option)**
- MSc in Civil Engineering (Environmental & ASAL Option)**
- M.Sc. Civil Engineering (Construction Eng. & management Option)**
- M.Sc. Civil Engineering (Transportation Option)**
- PhD Molecular Biology & Biotechnology**
- PhD Mathematics (Financial Option)**
- PhD Mathematics (Computational Option)**
- PhD Mathematics (Statistics Option)**
- PhD Electrical Engineering (Telecommunications Option)**
- PhD Electrical Engineering (Power Systems Option)**
- PhD Civil Engineering (Structural Option)**
- PhD Civil Engineering (Environmental & ASAL Option)**
- PhD Civil Engineering (Construction Eng. & management Option)**
- PhD Civil Engineering (Transportation Option)**