

CURRICULUM VITAE

1.0 Personal Information:

Dr. Benard Muthiani Kivunge
kivunge.bernard@ku.ac.ke

CURRENT ADDRESS:
Mathematics Department
Kenyatta University
P.O. BOX 43844 - 00100,
NAIROBI

PERMANENT ADDRESS:
P.O. BOX 9866 - 00200,
NAIROBI

Research Interest:

- Loop Theory specifically hyper complex numbers
- Matrix Completion problem.
- Coding theory
- Number Theory

Career Objective:

An administrative position in an academic institution or any other institution

2.0 Education/Qualifications:

Iowa State University, USA
Ph.D. in Pure Mathematics

Ames, IA, 50011
August 2004

Kenyatta University,
Master of Science in Mathematics

Nairobi, Kenya
October 1997

Kenyatta University,
B.Ed (Science)
First Class Honors

Nairobi, Kenya
October 1995

3.0 Employment Experience:

Senior Lecturer
Department of Mathematics
Kenyatta University

Feb 2013 – to date

Lecturer
Department of Mathematics

June 2005 – April 2011

Kenyatta University
Nairobi, Kenya

Lecturer, Si Tanka University, Huron, South Dakota.	Aug. 2004 – April 2005
Teaching Assistant, Iowa State University,	Aug 2000 – Aug. 2004
Tutorial Fellow, Kenyatta University,	Jan 1998 – June 2005
Graduate Teacher, Pindolia Academy, Nairobi	Aug 1997 – Jan 1998
Graduate Teacher, Kalulini High School	May 1995 – Dec 1995

4.0 Administrative Responsibility:

- Head, Teaching Programs and Publications
Kenyatta University Feb 2013 – to date
- Chairman of Department
Department of Pure and Applied Mathematics
The Kenya Polytechnic University College Oct 2011 – Feb 2013
- Teaching Practice Coordinator (KU) January 2011 – July 2011
- Acting Chairman – Department of Mathematics, KU June 2010 – August 2010
- Departmental Examinations Coordinator- Mathematics Dept. Nov 2005 – March 2010
- University Course Coordinator- African Virtual University, Jan 1999- Dec 1999
- Member of the School Scholarships and Travel Grants
Committee – SPAS, KU June 2006 – July 2011
- Member of the School Strategic Plan Committee – SPAS June 2006 – July 2011
- Member, Kenyatta University Tender Evaluation Committee Oct 2008 – July 2011

5.0 Postgraduate Supervision:

▪ Ph.D Supervision

Completed:

Kamaku Peter Waweru

Topic: The 13 digit ISBN code

Graduated June 2013

Njuguna Lydia Nyambura, Kenyatta University.

Topic: Sedenion Extension Loops and Hyper Complex Numbers

Graduated Dec 2012

Rimberia Jane Kagwiria, Kenyatta University.

Topic: Ranks, subdegrees and suborbital graphs of symmetric group S_n acting on ordered r -elements subsets.

Graduated Dec 2011

Ongoing:

1. 2013, Mutembei Josephine Gatiira, KU.: M_o - matrix completion problem for general digraphs .
2. 2013, Cyprian Macharia, KU.: Steiner triple Systems and Fermats Theorems.
3. 2013, Calvin Ochieng KU.: Pythagorean Triple Systems

- **MSc Supervision:**

- **Completed;**

1. 2007, Magero Fidelius Bunyasi, KU. : *Split extensions of Complex, Quaternions, Octonion basis elements.*
2. 2007, Mutembei Josephine Gatiira, KU.: M_o - matrix completion problem for digraphs of 2×2 and 3×3 matrices.
3. 2008, Waweru Peter Kamaku, JKUAT.: The M_o - matrix completion problem for digraphs of 4×4 matrices with $q = 4$ and 5 .
4. 2008, Kabusi A.M. Ruth, KU.: The M_o - matrix completion problem for digraphs of 4×4 matrices with $q = 0, 1, 2,$ and 3 .
5. 2008, Kimeu Arphaxad Ngwava, KU.: Some properties of hyper complex number basal elements.
6. 2008, Macharia Dishon Kahuthu, KU.: Some loop properties of sedenions.
7. 2009, Njoroge Peter Njau, KU.: Enumeration of cyclic codes over $GF(3)$.
8. 2009, Achieng Ruth, KU.: The M_o - matrix completion problem for digraphs of 4×4 matrices with $q = 4$ and 5 lines..
9. 2010, Njoroge James Mwangi, KU.: The M_o - matrix completion problem for digraphs of 5×5 matrices with less than 4 directed lines.
10. 2010, Runji Flora Mati.: Enumeration of cyclic codes over $GF(5)$.
11. 2010, Obogi Robert Karioko, KU.: The M_o - matrix completion problem for some digraphs of 5×5 matrices with five directed edges.
12. 2010, Omusambayi Laban Ombito.: Enumerating the number of cyclic codes of length n over $GF(2)$.
13. 2010, Kasii Joseph, Loop properties of split extensions for $Z_7, S_3, D_4,$ quaternions and octonions.
14. 2011, Paul Mwangi, The M_o - matrix completion problem for selected digraphs of 5×5 matrices with six edges.
15. 2012, Muiruri Simon Wanyoike,
16. 2012, Rukaria, Lydia Kananu,

6.0 Conferences/Seminars/ Workshops

6.1 Seminars/Schools Attended/participated:

- 11th- 17th August 2013. Third Mile High conference on Non Associative Mathematics, University of Denver, Colorado
Title of talk presented: Sign Matrices for Frames of 2^n -Ons under Smith Conway and Cayley Dickson multiplications,
- 8th – 10th June 2011.
The First Kenyatta University international Mathematics Conference.
Title of talk presented: Sign Matrices for Frames of 2^n -Ons under Smith Conway and Cayley Dickson multiplications.
Theme: *The Role of Mathematics as a Tool for Development*
- 10th – 14th August 2010

1st East African Regional Scientific conference held at Kenyatta University, Nairobi, Kenya.

- 4th – 7th May 2010.
Africa Educational Research Network (AERN) Summit, Kenyatta University, Nairobi, Kenya. Theme: *Enhancing educational research between African & American universities.*
- 26th August -4th Sept. 2009
Data Analysis workshop and conference held in Mathematics Dept. Kenyatta University, Nairobi, Kenya.
- August 4th - 11th 2007
Loops 2007, International Mathematical Conference, Prague, Czech Republic,
Title of talk given: *Sign Matrices and Hadamard matrices.*
Website: <http://adela.karlin.mff.cuni.cz/~loops07/> (abstract number)
- August 10th - 17th 2003
Loops'03, International Mathematical Conference, Prague, Czech Republic
Title of talk given: *Sedenions and Split Extension Subloops.*
Website: <http://adela.karlin.mff.cuni.cz/~loops03/> (abstract number 24)
- Sept 13-14 2002:
Topics in Linear Algebra Conference, Iowa State University
Title of talk given: *The nonnegative Po-Matrix Completion problem.*
Website: <http://www.math.iastate.edu/lhogben/TLA/program.pdf> page 10
<http://www.math.iastate.edu/lhogben/TLA/homepage.html#speakers>
- April 4th and April 11th 2002
Gave two talks in the weekly Linear Algebra Seminars in Iowa State University
Title of talk given: *The nonnegative Po-Matrix Completion problem.*
Website: <http://www.math.iastate.edu/lhogben/research/linalgsem.html#past>
(2001-2002 category, third last)

6.2 Convening and Coordinating Conference:

Conference Organizations

Title: The First Kenyatta University international Mathematics Conference.
Theme: The Role of Mathematics as a Tool for Development
Dates: 8th March - 10th June 2011
Venue: Kenyatta University Conference Center, Kenya.

Title: 1st Data Analysis workshop and Conference
Theme: Mentoring African Research in Mathematics
Dates: 26th August -4th September 2009
Venue: Mathematics Department – Kenyatta University, Kenya

7.0 Research and Publications:

Article in referenced Journals

1. *Electronic Journal of Linear Algebra* ISSN 1081-3810
 A publication of the International linear Algebra Society
 Volume 10, pp.46-59, March 2003
 Title: *The nonnegative Po-Matrix Completion problem*
 Website: http://www.math.technion.ac.il/iic/ela/ela-articles/articles/vol10_pp46-59.pdf
2. *Commentationes Mathematicae Universitatis Carolinae* 2004
 Quarterly periodical by Mathematics Institute of Charles University, Prague, Czech Rep
 Volume 45,2 (2004) 295-302
 Title: *Subloops of Sedenions*
 Website: <http://www.karlin.mff.cuni.cz/cmuc/cmucemis/cmucemis.htm>
3. *International Electronic Journal of Pure and Applied Mathematics. IEJPAM*
 Volume 1, No. 3 pp.46-59, September 2010.
 Title: *On the cycle indices of Frobenious groups.*
 Website: <http://www.math.uctm.edu/iejpam/contents/201000103.html>
4. *Demonstratio Mathematica* ISSN 0420-1213
 A publication of the Warsaw University of Technology, Warszawa, Poland
 Volume XLII No 1 pp.23-39, March 2010
 Title: *On the cycle indices of Frobenious groups.*
 Website: <http://www.math.uctm.edu/iejpam/contents/201000103.html>

8.0 National and International Recognition:

- a) National
- External Examiner – JKUAT, April 2012 – to date
 - External Examiner – Technical University, Mombasa, 2009 – to date
 - External Examiner – Kiriri Women University of Science and Technology, 2007 - to date
 - BOG Member - Kiima Kiu Secondary School, Kenya 2007- to date
 - BOG Member – Nyayo Girls Secondary School, Kenya 2012- to date
 - Treasurer – Kilome Constituency Development Forum
 - Assistant Treasurer – Makueni County Development Forum
 - Mathematical Reviewer of American Mathematical Society.
 “Asymptotic bound on binary self-orthogonal codes.” November 2009.

9.0 Membership to Professional Bodies:

- The American Mathematical Society.
- The Phi Kappa Phi