

COLLEGE OF NATURAL SCIENCES

MAKERERE UNIVERSITY

ANNUAL REPORT - 2010

TABLE OF CONTENTS

	PAGE
List of Acronyms	
A Word from the Principal	4
Introduction	5
Mission of the College	5
Goals	5
Mandate	5
Teaching and Learning	6
Reports from Schools	9
School of Physical Sciences.....	9
Department of Mathematics	9
Department of Physics	11
Department of Geology and Petroleum Studies	16
Department of Chemistry	18
School of Biological Sciences	22
Department of Biology	22
Botany	22
Zoology	27
Department of Biochemistry and Sports Science	31
Biochemistry	31
Sports Science	34
Annex 1	35

LIST OF ACRONYMS

BCB – Bachelor of Science in Conservation Biology

BFA – Bachelor of Science in Fisheries and Aquaculture

BGRM – Bachelor of Science in Geological Resources Management

BIC – Bachelor of Science in Industrial Chemistry

BPG – Bachelor of Science in Petroleum Geoscience and Production

BSc. – Bachelor of Science

BSP – Bachelor of Science in Sports Science

CONAS – College of Natural Sciences

ETB – Bachelor of Science in Ethnobotany

MSc. – Master of Science

A WORD FROM THE PRINCIPAL

I present to you the annual report of the College of Natural Sciences (CONAS) for the year 2010 which highlights our activities throughout the year. The year bore a lot of promise for the College in championing the mission of Makerere University. Capacity building for our members of staff was realized through attendance of workshops and seminars both at national and international level. Excellence in teaching and learning has continued supported by various research activities and projects undertaken by staff and students.

The College has realized several developments, among which is the transformation from a Faculty to a College following approval by the University Council to change Makerere University into a Collegiate University. The College of Natural Sciences is formed out of a merger of eight departments that formed the former Faculty of Sciences and the Division of Engineering Mathematics originally housed in the Faculty of Technology. The College is composed of 2 schools, the School of Physical Sciences and the School of Biological Sciences. The Schools are broken down further into departments. There are also plans to establish centres of excellence and institutes at the College. It is expected that the collegiate system will offer more autonomy thereby creating efficiency in the implementation of initiatives and activities.

New courses have been introduced in Petroleum Geosciences and Production to strategically position the College in providing the required human resources for the nascent petroleum industry of Uganda. In future, more courses will be introduced as gaps are identified from time to time.

The College of Natural Sciences has continued to produce science professionals from the undergraduate to doctorate levels. Members of staff have published in internationally peer reviewed journals and also formed partnerships with other institutions. This further strengthens the research base of the College tackling key research questions for our nation like trypanosomiasis research, ethnobotany and pollution among others.

In the human resource arena, staff members have continued to go on further training for award of masters and doctorates which will improve the establishment of CONAS. However, challenges of recruitment delays and retaining staff continue to affect the performance of the college. Servicing of students from other colleges worsen the problem with the student staff ratio remaining very high.

I would like to thank the Government of Uganda, University Administration and development partners for their support of our activities during 2010. I also extend thanks to administration at the College, staff and students for participating in the activities of the College.

Prof. J.Y.T. Mugisha
AG. PRINCIPAL, COLLEGE OF NATURAL SCIENCES

1. INTRODUCTION

This is a presentation of the annual report of the College of Natural Sciences for the year 2010. The report details progress and activities implemented within the year. The College offers Bachelors, Masters and Doctorate degrees in basic sciences and some aspects of applied sciences.

The College is made up of two schools, the School of Biological Sciences and School of Physical Sciences. The schools are further divided into departments. The School of Physical Sciences has the departments of Mathematics, Physics, Chemistry, and Geology and Petroleum Studies. The School of Biological Sciences has the departments of Biology and department of Biochemistry and Sports Science.

2. MISSION OF THE COLLEGE OF NATURAL SCIENCES

The mission of the College of Natural Sciences is to create and impart knowledge in basic and applied sciences to society through training, research and extension services for development.

3. GOALS

The College of Natural Sciences among other things had the following goals in the retrieval period 2006/2007 – 2009/2010:

- Development of demand driven programmers;
- Increase of practical skills in science;
- Strengthening demand driven scientific research;
- Strengthening the use of ICT in order to improve efficiency in storage, retrieval and dissemination of information for management, teaching, research and learning;
- Promotion of the adaptation of technological breakthrough in science for national development;
- Development of linkages with various institutions with similar aspirations;
- Forging linkages with grassroots and the private sector

4. MANDATE

The College of Natural Sciences has the mandate to carry out teaching and research in the Basic Sciences namely; Biochemistry, Botany, Chemistry, Geology, Mathematics, Physics, Sports Science and Zoology.

5. TEACHING AND LEARNING

The College of Natural Sciences offers courses in basic and some aspects of Applied Sciences. Additionally, we have courses in Biochemistry for students from the College of Health Sciences and School of Veterinary Medicine. We also teach students from the College of Education and External Studies, College of Computing and Information Science and School of Statistics and Applied Economics a number of courses in Chemistry, Mathematics, and Physics.

In addition to the theoretical classes by our students, courses offered at the College are supplemented by laboratory based learning for practicals and e-learning. The department of biology also conducts field-based teaching to supplement the work in laboratories. This offers the students an appreciation of the work handled in class. Field attachments to ensure hands-on experience for the students has been introduced.

The College has a herbarium and museum that staff and students use for curation (preserving and preparing of materials). Work in the herbarium is conducted physically and electronically, since the facility was recently digitized. A botanical garden is also maintained for practical work. In addition, an aquarium with live fish is available for practical classes for the zoology and aquaculture students.

It should be noted that for purposes of furthering knowledge, research projects jointly handled by staff and students are conducted in all departments at graduate (Masters and PhD) level.

The student enrolment for the year 2010 was as follows:

Table 1: Undergraduate Students

Programme	Year I	Year II	Year III	Grand Total
BSc.	131	134	201	466
BIC	69	55	122	246
BFA	13	19	34	66
ETB	9	22	12	43
BSP	22	23	47	92
BCB	15	17	21	53
BGRM	-	-	13	13
BBPG	40	-	-	40
Total	299	270	450	1019

Table 2: Postgraduate Students

Department	M.Sc.	PhD	Total
Biochemistry and Sports Science	2	3	5
Biology	8	4	12
Chemistry	5	4	9
Geology and Petroleum Studies	0	0	0
Mathematics	10	4	14
Physics	10	2	12
Total	35	17	52

Table 3: Total number of graduates in 2010 compared with 2009

Programme	Bachelors		Masters		Doctorates		Total		Grand Total	Graduates 2009
	M	F	M	F	M	F	M	F		
Science	34	140	16	1	4	2	54	143	197	154
BIC	24	40	-	-	-	-	24	40	64	46
BFA	8	20	-	-	-	-	8	20	28	23
ETB	6	1	-	-	-	-	6	1	7	8
BSP	12	10	-	-	-	-	12	10	22	12
BCB	10	9	-	-	-	-	10	9	19	15
GRM	0	3	-	-	-	-	0	3	3	2
BPG	-	-	-	-	-	-	-	-	-	-
Total	94	223	16	1	4	2	114	226	340	260

Table 4: Qualifications of Staff at CONAS in 2010

Department	PhD	Masters	Bachelors	Total
Biochemistry	10	7	3	20
Sports Science	1	1	7	9
Zoology	15	4	0	19
Botany	14	1	3	18
Physics	9	7	5	21
Mathematics	8	10	3	21
Chemistry	8	14	0	22
Geology	7	7	0	14
Total	73	55	25	144

Table 5: Staff numbers on ground as of 2010

Department	P	AP	SL	L	AL	Curators	TA	Total
Biochemistry	0	2	1	8	5		4	20
Sports Science	0	0	0	0	2		7	9
Zoology	2	4	4	3	3	1	2	19
Botany	2	4	2	4	0	2	4	18
Physics	3	0	1	5	7		5	21
Mathematics	2	0	2	7	6		4	21
Chemistry	2	2	1	7	6		4	22
Geology	1	0	3	5	5		0	14
Total	12	12	14	39	34	3	30	144

Key:

P = Professor; AP = Associate Professor; SL = Senior Lecturer;
 L = Lecturer; AL = Assistant Lecturer; TA = Teaching Assistant

Table 6: Publications in refereed Journals in 2010

Specialty	Publications in ref. Journals
Biochemistry and Sports Science	9
Biology	31
Chemistry	11
Geology and Petroleum Studies	2
Mathematics	6
Physics	16
Total	75

REPORTS FROM DEPARTMENTS

SCHOOL OF PHYSICAL SCIENCES

Department of Mathematics

The department of mathematics offers courses at both undergraduate and graduate levels. The department also offers basic training to students from other colleges, i.e. College of Education and External Studies (all BSc Education and BSc external students), the College of Business and Management Sciences, College of Engineering, Design, Art and Technology and the College of Computing and Information Sciences.

Staff

NO.	NAME	TITLE	STATUS
1	Prof. L. S. Luboobi	Professor	Contract
2	Prof. J. Y. T. Mugisha	Professor (Ag. Principal, College of Natural Sciences)	Permanent
3	Dr. V. A. Ssembatya	Senior Lecturer (Director, Quality Assurance)	Permanent
4	Dr. J. M. Mango	Senior Lecturer (Deputy Dean/Academics)	Permanent
5	Dr. J. Kasozi	Senior Lecturer (Head of Department, Mathematics)	Permanent
6	Dr. S. H. Nsubuga	Lecturer	Permanent
7	Dr. H. Namata	Lecturer	Permanent
8	Mr. M. K. Nganda	Lecturer	Permanent
9	Mr. W. G. Naigambi	Lecturer	Permanent
10	Mr. A. Buyego	Lecturer	Permanent
11	Dr. C. S. Ssebugenyi	Lecturer	Permanent
12	Mr. G. Kakuba	Assistant Lecturer	Permanent
13	Mrs. B. K. N. Kirenga	Assistant Lecturer	Permanent
14	Ms. B. K. Nannyonga	Assistant Lecturer	Contract
15	Mr. D. W. Ddumba	Assistant Lecturer	Permanent
16	Mr. I.G. Mirumbe	Assistant Lecturer	Permanent
17	Mr. J. M. Kitayimbwa	Assistant Lecturer	Permanent
18	Mr. M. Nathan	Teaching Assistant	Contract
19	Mr. A. B. Tumwesigye	Teaching Assistant	Contract
20	Mr. F. Mayambala	Teaching Assistant	Contract
21	Mr. I. Ndikubwayi	Teaching Assistant	Contract
22	Ms. E. Nakazibwe	Secretary	Permanent
23	Ms. I. Namatovu	Secretary	Permanent
24	Mr. A. Wandera	Computer Lab/ Librarian	Permanent

NO.	NAME	TITLE	STATUS
25	Mr. E. Niyonzima	Cleaner/Messenger	Permanent
26	Mr. A. Habarurema	Cleaner/Messenger	Permanent
27	Ms. P. Nazziwa	Cleaner/Messenger	Permanent

*The department of Mathematics hosted Prof. Gregory K. Sankaran from the University of Bath, UK as a visiting lecturer.

Workshops and conferences attended

Dr. Juma Kasozi: The Eastern Africa summer school on Linear Algebra and the fast Fourier transform held 6 - 17th December 2010 at Makerere University, Kampala, Uganda.

Dr. Juma Kasozi: SAMSA 2010 conference held at Botswana University of Agriculture, Gaborone 29th November to 4th December, 2010. Paper presented: Numerical Ultimate Ruin Probabilities for a risk process compounded by risk-free investments.

Research Projects / Activities

Mathematical Modeling of Eutrophication and Pollution in Lake Victoria Project Publications (Dr. J. Mango, Dr. J. Kasozi, Dr. Vincent Sembatya and PhD Student, Mr. Walakira D. D.)

Publications

1. Tibayungwa, F., **Mugisha, J.Y.T.** & Nabasirye, M. (2010). Modeling nitrogen excretion, elephant grass growth and animal production in stall-feeding dairy system, African Journal of Agric. Research, 5(15): 2039-2044
2. Tibayungwa, F., **Mugisha, J.Y.T.** & Nabasirye, M. (2010). Modeling growth of dairy cattle heifers fed on elephant grass under stall-feeding system in Uganda, African Journal of Agric. Research, 5(11): 1220 – 1227
3. Ibrahim M. ELmojtaba, **Mugisha, J.Y.T.** & Mohsin H.A. Hashim (2010). Mathematical Analysis of the dynamics of visceral leishmaniasis in the Sudan. Applied Mathematics and Computation, 217: 2567-2578
4. Ibrahim M. ELmojtaba, **Mugisha, J.Y.T.** & Mohsin H.A. Hashim (2010). Modelling the role of cross-immunity between two different strains of leishmania. Nonlinear Analysis: Real World Applications, 11: 2175 - 2189
5. Tumwiine J., **Mugisha, J.Y.T.** & Luboobi, L.S. (2010). A host-vector model for malaria with infective immigrants J. Math. Anal. Appl. 361(1) 139–149
6. Kasozi, Juma. 2010 working paper: Numerical finite horizon ruin probabilities in the classical risk model with stochastic return on investments.

Department of Physics

The Physics Department offers Courses in Physics leading to the award of BSc, MSc and PhD. There is a wide range of courses at both Undergraduate and Postgraduate levels. The department also services students offering BSc Education from the College of Education and External Studies. To keep in sync with new advancements in physics, there are new course units designed as electives. There are also several areas of research in which members of staff are engaged.

Staff

NO.	NAME	TITLE	STATUS
1	Prof. Y. Kaahwa	Professor	Contract
2	Prof. E.J.B. Banda	Professor	Contract
3	Prof. T. T. Oti	Professor	Permanent
4	Dr. F. D'Ujanga	Sen. Lecturer/Head of Department	Permanent
5	Dr. A.N. Kisolo	Lecturer	Permanent
6	Dr. W. Okullo	Lecturer	Permanent
7	Dr. T. Ssenyonga	Lecturer	Permanent
8	Dr. J. Mubiru	Lecturer	Permanent
9	Mr. T. Ireeta	Assistant Lecturer	Permanent
10	Mr. K. Nyeinga	Assistant Lecturer	Permanent
11	Mr. D. Okello	Assistant Lecturer	Permanent
12	Mr. N. Kwarikunda	Assistant Lecturer	Permanent
13	Mr. U. Mwidu	Assistant Lecturer	Permanent
14	Mr. B.F. Twinamasiko	Assistant Lecturer	Permanent
14	Mr. S. Tusiime	Teaching Assistant	Study Leave
15	Mr. A. Okello	Teaching Assistant	Contract
16	Mr. D. Muyimbwa	Teaching Assistant	Contract
17	Ms. A. E. Zawedde	Teaching Assistant	Contract
18	Ms. G. Ayugi	Teaching Assistant	Contract
19	Dr. E. Mucunguzi-Rugwere	Part-time Lecturer	Contract
20	Mr. J. Lubega	Principal Technician	Permanent
21	Mr. M. Musoke	Senior Technician	Permanent
22	Mr. S.L. Kwizera	Senior Technician	Permanent
23	Mr. R. Nteziyaremye	Technician I	Permanent
24	Mr. F. M. Okiror	Technical Assistant	Permanent
25	Mr. M. Kawumba	Laboratory Assistant I	Permanent
26	Ms. M. Naibinga	Laboratory Assistant II	Permanent
27	Ms. H. Namakoye	Ag. Copy Typist	Permanent
28	Mr. R. Kasozi	Cleaner/Lab. Assistant	Permanent
29	Ms. I. Namalwa	Cleaner	Permanent
30	Mr. J. Okullo	Cleaner	Permanent

NO.	NAME	TITLE	STATUS
31	Ms. D. Nakiwunge	Messenger/Cleaner	Permanent
32	Mr. S. Kobusingye	Cleaner	Permanent
33	Mr. F.Kigai	Cleaner	Permanent
34	Ms. S. Nanyanzi	Cleaner	Permanent
35	Ms. A. Namulwa	Cleaner	Permanent

Conference and Workshops attended:

1. **Dr. Willy Okullo:** South African Institute of Physics Conference, Pretoria, South Africa. October 2010.
2. **Dr. Willy Okullo:** African Laser Centre Workshop, Stellenbosch, South Africa. September 2010
3. **Dr. Willy Okullo:** National Research Foundation, South African National Postdoc Forum, Stellenbosch , South Africa. November, 2009
4. **Prof. E.J.K. Banda, K. Nyeinga, and D. Okello:** NUFU Small Scale Concentrating Solar Energy Systems Annual Project Workshop. October, 2009 Durban, S.A.
5. **Mr. B.F. Twinamasiko:** Joint ICTP/IAEA Workshop on Alternative Response Actions to Climate Change and Energy Options, Trieste, Italy. October 2009.
6. **Prof. E.J.K. Banda, K. Nyeinga, D. Okello and Gertrude Ayugi:** NUFU Small Scale Concentrating Solar Energy Systems Annual Project Workshop. September, 2010 Addis-ababa Ethiopia.
7. **Dr. F.M. D’ujanga and Ms A.E. Zawedde:** Ionosphere and its Effects in GNSS Systems, Cairo, Egypt. Jan 2010.
8. **Dr. F.M. D’ujanga and Mr. B.F. Twinamasiko:** 2nd Workshop on Satellite Navigation Science and Technology for Africa, Trieste, Italy. April 2010.
9. **Dr. F.M. D’ujanga, Mr. B.F. Twinamasiko and Ms A.E. Zawedde** GNSS Workshop, Nairobi, Kenya. July 2010.
10. **Mr. B.F. Twinamasiko:** The 2010 International Space Weather Initiative (ISWI) Africa School on Space Physics. Bahir Dar, Ethiopia, October 2010.
11. **Dr. F.M. D’ujanga:** School of Geosciences – AfricaArray, Johannesburg, South Africa. November 2010.
12. **Mr. N Kwarikunda:** MedCLIVAR Workshop on “Scenarios of Mediterranean Climate Change Under Increased Radiative Active Gas Concentration and the Role of Aerosols”, Trieste, Italy. September 2010.
13. **Mr. Winston Tumps Ireeta:** A workshop on “Entrepreneurship for Physicists and Engineers from Africa” held from 9th to 13th November 2009 at iThemba LABS in Cape Town, South Africa.
14. **Mr. Winston Tumps Ireeta:** A workshop on “Writing for Publication in the Sciences” organized by the Research Capacity Development Divison of Nelson Mandela Metropolitan University, South Africa held on 8th October 2009 in Port Elizabeth, South Africa.
15. **Mr. Winston Tumps Ireeta:** A workshop on “Writing a Funding Proposal for Sciences” organized by the Research Capacity Development Divison of Nelson Mandela Metropolitan University, South Africa held on 28th May 2009 in Port Elizabeth, South Africa.

16. **Mr. Winston Tumps Ireeta:** A workshop on “Writing a Research Proposal” organized by the Research Capacity Development Divison of Nelson Mandela Metropolitan University, South Africa held from 13th to 15th May 2009 in Port Elizabeth, South Africa.
17. **Mr. Winston Tumps Ireeta:** A workshop on “Time and Stress Management for Researchers” organized by the Research Capacity Development Divison of Nelson Mandela Metropolitan University, South Africa held on 6th April 2009 in Port Elizabeth, South Africa.
18. **Mr. Winston Tumps Ireeta:** Fiber Optic Communications Technology Training Course held from 23rd to 28th March 2009 at the Nelson Mandela Metropolitan University, South Africa in collaboration with the Engineering School of Communications of Tunis (Sup’Com), Tunisia.
19. **Mr. Winston Tumps Ireeta:** 11th Southern African Telecommunication Network and Applications Conference (SATNAC), Royal Swazi Spa, Swaziland (30th August to 2nd September 2009).
20. **Mr. Winston Tumps Ireeta:** 12th Southern African Telecommunication Network and Applications Conference (SATNAC), Spier Estate, Stellenbosch, South Africa (5th to 8th September 2010).
21. **Mr. Winston Tumps Ireeta:** 55th South African Institute of Physics (SAIP) Conference, CSIR, Pretoria, South Africa (27th September to 1st October 2010).

Research Projects/Activities

1. Dr. Florence M. D’ujanga with a PhD and two MSc. students
Space Weather research
2. Prof. Eldad J.K. Banda with two PhD and one MSc. students
Solar Heat Storage
3. Dr. Akisophel Kisolo with two MSc. students
Radiation Physics
4. Prof. Tom Otiti with one MSc. student
Solar Energy
5. Dr. Willy Okullo with one PhD and one MSc. Students
Solar Energy (Photovoltaics)
6. Dr. T.J. Ssenyonga and one MSc. Student
Solar UV radiation
7. Prof. Y. Kaahwa with one MSc. Student
Materials Science

Publications

1. K. Nyeinga, E.J.K.B.Banda, O.J.Nydal and J. Lovseth: Dynamic Model for Small Scale Concentrating Solar Energy Systems with Heat Storage, Proc. ISES Conference Johannesburg, S.A, 2009.
2. D.Okello, E.J.K.B.Banda, J. Lovseth and O.J. Nydal: Temperature Profile in RockBed Heat Storage for Food Preparation, Proc. ISES conference, Johannesburg, S.A., 2009.
3. B.F. Twinamasiko: Brief Overview of the Effects of Global Warming on Africa, Specifically Uganda, Proc. ICTP/IAEA conference, Trieste, Italy, 2009.
4. F.M. D'ujanga, B.F. Twinamasiko: SCINDA Setup and Measurement at Makerere University, Proc. GNSS Workshop, Trieste, Italy, April 2010.
5. F.M. D'ujanga, B.F. Twinamasiko, A.E. Zawedde: Space Science Research with SCINDA GPS Receiver at Physics Department, Makerere University, Proc. GNSS Workshop, Nairobi, Kenya, July 2010.
6. **Winston T. Ireeta**, Vitalis Musara, Lorinda Wu, and Andrew W. R. Leitch, "Statistical Characterization of the Output State of Polarization in Deployed Single Mode Fibres," Optics Letters, vol. 35, issue 12, pp. 2049-2051, June 2010.
7. **Winston T. Ireeta**, Vitalis Musara, Samuel K. Fosuhene, Lorinda Wu, and A.W.R. Leitch, "Determining the Rate of PMD Compensation in Deployed Aerial Optical Fibres Through SOP Monitoring," Proc. 12th Southern African Telecommunication Network and Applications Conference (SATNAC), Spier Estate, Stellenbosch, South Africa (5th to 8th September 2010). Published in the Conference Proceedings, pp. 261-265, ISBN: 978-0-620-47934-9.
8. **Winston T. Ireeta**, Vitalis Musara, and A.W.R. Leitch, "A Comparison of the Tolerance of DQPSK, NRZ and RZ Modulation Formats in a PMD-induced Environment", Oral presentation at the 55th South African Institute of Physics (SAIP) Conference, CSIR, Pretoria, South Africa (27th September to 1st October 2010). Published in the Conference Proceedings, ISBN: 978-0-620-46211-2.
9. **Winston T. Ireeta**, V. Musara, L. Wu, and A.W.R. Leitch, "SOP and PMD monitoring on deployed aerial optical fibres," submitted to the Optics Communications Journal (November 2010).
10. Vitalis Musara, **Winston T. Ireeta**, Samuel K. Fosuhene, Lorinda Wu, and A.W.R. Leitch, "The Influence of High first-order Polarization Mode Dispersion Sections on Optical Network System Performance," Proc. 12th Southern African Telecommunication Network and Applications Conference (SATNAC), Spier Estate, Stellenbosch, South Africa (5th to 8th September 2010). Oral presentation by Winston Tumps Ireeta. Published in the Conference Proceedings, pp. 273-276, ISBN: 978-0-620-47934-9. (*Awarded prize for 2nd best paper at conference*)
11. Vitalis Musara, **Winston T. Ireeta**, L. Wu, and A.W.R. Leitch, "The General Interferometry Technique: Interferogram Analysis in The Presence of a High Polarization Mode Dispersion Segment," Winston Tumps Ireeta is the corresponding author. Submitted to Optics Letters (October 2010).

12. Vitalis Musara, **Winston T. Ireeta**, Samuel K. Fosuhene, Lorinda Wu, and A.W.R. Leitch, "The impact of a High Polarization Mode Dispersion Section on the Output State of Polarization of Propagating Light," submitted to Optical Fibre Technology Journal (May 2010).
13. Vitalis Musara, **Winston T. Ireeta**, Samuel K. Fosuhene, Lorinda Wu, and A.W.R. Leitch, "Tuneable Polarization Mode Dispersion Emulator: Fixed Polarization Maintaining Fibre Sections and Rotatable Polarization Orientations," Accepted for publication in the Optik Journal (November 2010).
14. Vitalis Musara, Samuel Fosuhene, **Winston T. Ireeta**, Andrew Leitch, and Lorinda Wu, "Emulator With Inverse Trend in First-Order and Second-Order Polarization Mode Dispersion," submitted to Optics Communications Journal (May 2010).
15. Samuel K. Fosuhene, Vitalis Musara, **Winston T. Ireeta**, and Andrew W. R. Leitch, "Forward and Single-ended Polarization Mode Dispersion (PMD) Measurements on a Tunable PMD Emulator", Poster presentation at the 55th South African Institute of Physics (SAIP) Conference, CSIR, Pretoria, South Africa (27th September to 1st October 2010). Published in the Conference Proceedings, ISBN: 978-0-620-46211-2.
16. V. Musara, **W.T. Ireeta**, L. Wu and A.W.R. Leitch, "Detecting the Dominance of PMD from a Fibre Segment on an Optical Network System Through State of Polarization Monitoring", Proc. 11th Southern African Telecommunication Network and Applications Conference (SATNAC), Royal Swazi Spa, Swaziland (30th August to 2nd September 2009). Oral presentation by Winston Tumps Ireeta. Published in the Conference Proceedings, pp. 461-462. ISBN: 978-0-620-44106-3.

Department of Geology and Petroleum Studies

The Department of Geology and Petroleum Studies is very popular at the College following the exploration and discovery of oil in Uganda. It offers courses at undergraduate, masters and PhD levels. One of the recent developments is the introduction of the Bachelor of Science degree in Petroleum Geoscience and Production. There are also plans to introduce a master's programme in Petroleum Geoscience and Production.

Staff

NO.	NAME	TITLE	STATUS
1.	Dr. E. Barifaijo	Assoc. Professor	Permanent
2.	Dr. J.V. Tiberindwa	Senior Lecturer/ Head of Department	Permanent
3.	Dr. A. Muwanga	Senior Lecturer	Permanent
4.	Ms. P. Kulyanyingi Kiwuwa Kalega	Lecturer	Permanent
5.	Ms. A. Kuterema Alaba	Lecturer	Permanent
6.	Dr. I. Ssemmanda Nakimera	Lecturer	Contract
7.	Dr. B. Nagudi	Lecturer	Permanent
8.	Dr. J. M. Kiberu	Lecturer	Permanent
9.	Dr. M. Owor	Lecturer	Permanent
10	Mr. W. Kawule	Assistant Lecturer	Permanent Study Leave
11.	Ms. K. Aanyu	Assistant Lecturer	Permanent Study leave
12	Mr. A. G. Batte	Assistant Lecturer	Permanent Study leave
13	Mr. R. Mamgbi	Assistant Lecturer	Contract
14	Mr. L. Twinomujuni	Assistant Lecturer	Permanent
15	Ms. S. Kigozi	Senior Technician/Ag. Chief Technician	Permanent
16	Mr. M.Kasaka	Technician I	Permanent
17	Mr. W. Kasule	Technician II	Contract
18	Mr. J. Wakyaya	Laboratory Assistant 1	Permanent
19	Ms. J. Tumwebaze	Senior Copy Typist	Permanent
20	Mr. R. Sessanga	Laboratory Assistant II	Contract
21	Ms. A. Kato	Senior Library Assistant	Permanent
22	Mr. E. Emodock	Laboratory Attendant	Permanent

NO.	NAME	TITLE	STATUS
23	Ms. G. Ssekamanya	Laboratory Attendant	Permanent
24	Ms. Namisango	Cleaner/Messenger	Permanent
25	Mr. Balyejusa	Driver	Permanent

Workshops / Conferences attended

1. Dr. Tiberindwa J. V.: National Workshop on Isotope Hydrology (**December 7th to 11th 2010**).

Research Projects / Activities

1. The Rift Link Project on the Evolution and Tectonic History of the Rwenzori Mountain. This is a comprehensive collaboration between the Geology Department, Makerere University and some 12 Universities from Germany. This project has been extended for another three years beginning 1st April 2009.
2. Establishment of an Environmental and Social Management framework for the Department of Geological Survey and Mines, Ministry of Energy and Mineral Resources.

Publications

1. Klemens Link, Daniel Koehn, Matthias G. Barth, **John V. Tiberindwa**, **Erasmus Barifaijo**, **Kevin Aanyu** and Stephen F. Foley 2010. Continuous Cratonic crust between the Congo and Tanzania blocks in western Uganda. *Int. J. Earth Sci. (Geol. Rundsch)* (2010) 99: 1559-1573.
2. Woelbern, I., Ruempker, G., Schumann, A. & Muwanga. A. (2010). Crustal thinning beneath the Rwenzori region, Albertine rift, Uganda, from receiver-function analysis. *Int J Earth Sci (Geol Rundsch)*. DOI 10.1007/s00531-009-0509-2

Department of Chemistry

The department offers courses at undergraduate, masters and PhD levels. An ever increasing demand for students from the department have necessitated introduction of a new course in Chemical Engineering. This is intended to provide personnel to the multiplicity of the industries that have come up as a result of liberalization of the economy. This was guided by the following reasons:

1. Providing sufficient trained industrial chemists with skills to handle the challenges of industrial development.
2. Expanding the curriculum to offer industry-oriented training to up-coming scientists.
3. Imparting industrial design skills.
4. Providing technical and managerial skills in industrial development and management.

Staff

NO.	NAME	TITLE	STATUS
1	Prof. B.T. Kiremire	Professor	Contract
2	Prof. H. Ssekaalo	Professor	Contract
3	Assoc. Prof. Steven A. Nyanzi	Associate Professor	Permanent
4	Assoc. Prof. J. Mbabazi	Associate Professor	Permanent
5	Dr. M. Ntale	Lecturer	Permanent
6	Dr. G.W. Nyakairu	Lecturer	Permanent
7	Dr. R. Byamukama	Lecturer	Permanent
8	Dr. J. Wasswa	Lecturer	Permanent
9	Mr. R. S. Muyanja	Lecturer	Permanent
10	Mr. M. G. Mabudo	Lecturer	Permanent
11	Mr. J. Sekamate	Lecturer	Permanent
12	Mrs Betty B. Naziriwo	Lecturer	Permanent
13	Mr. E. Tebandeke	Assistant Lecturer	Permanent
14	Mr. E. Mubiru	Assistant Lecturer	Permanent
15	Mrs J. O. Namukobe	Assistant Lecturer	Permanent
16	Mr. P. Ssebugere	Assistant Lecturer	Permanent
17	Mr. Maiki E. Peter	Assistant Lecturer	Permanent
18	Mr. I.T. Mukasa	Teaching Assistant	Contract
19	Ms M. Adia Madina	Teaching Assistant	Contract
20	Mr. Yiga Solomon	Teaching Assistant	Contract
21	Mr. Arinaitwe Kenneth	Assistant Lecturer	Permanent
22	Mr. Ochieng Richard	Teaching Assistant	Contract
23	Mr. Ruharara Budigi	Chief Technician	Permanent
24	Mr. Bitainensha Christopher	Principal Technician	Permanent
25	Mr. Mulinda Stephen	Senior Technician	Permanent

NO.	NAME	TITLE	STATUS
26	Mr. Jjagwe Nkalubo Geoffrey	Technician I	Permanent
27	Mr. Tindyewa Sam	Technician I	Permanent
28	Ms Tebbadanya Susan	Technician II	Permanent
29	Mr. Kavuma Peter	Technician II	Permanent
30	Mr. Obure Ojur Peter	Technician II	Permanent
31	Mr. Nkolongo Moses	Technician II	Permanent
32	Mr. Ssensamba Dan	Technician II	Permanent
33	Mrs Byarugaba Savina	Technician II	Permanent
34	Ms. Nabachwa Margaret	Copy Typist	Permanent
35	Ms Kayanja Jane	Lab. Assistant	Permanent
36	Mr. Kasozi John	"	Permanent
37	Mr. Amanyana Jackson	"	Permanent
38	Mr. Masongole Steven	"	Permanent
39	Mr. Mukasa Edward	"	Permanent
40	Mr. Mukeda Emmanuel	"	Permanent
41	Mr. Mugisa Tito	"	Permanent
42	Mr. Kamukama Steven	"	Permanent
43	Mr. Bbosa Tom	Lab Attendant	Permanent
44	Mr. Adriko Tom	"	Permanent
45	Mr. Opio John	"	Permanent
46	Mr. Tumwekwase Joseph	"	Permanent
47	Ms. Nakibuuka Joyce	"	Permanent
48	Ms. Asaba Zaituni	"	Permanent
49	Ms. Naziwa Harriet	"	Permanent
50	Mr. Mugisa Charles	"	Permanent
51	Mr. Mugisha Stephen	"	Permanent

Research Projects/Activities

1. Multi-Matrix Contamination Levels, Trends and Biomagnification of Persistent Organic Pollutants and Pesticides in the Fish Food Web of Lake Victoria (Uganda) by **Prof B. Kiremire**. Supported by Swedish International Development Agency (SIDA).
2. Bioactivity and Phytochemistry Of Medicinal Plants Used By The People And Chimpanzees In And Around Kibale National Park, Uganda by **Prof B. Kiremire**. Supported by Centre National de la Recherche Scientifique (CNRS) – France.
3. Effect of grafting and other management practices on physico-chemical properties of passion fruit juice by **Steven A. Nyanzi** (Principal Investigator), Samuel Kyamanywa and Mildred Ochwo-Ssemakula. Supported by NORAD – US \$ 30,000 since March 2009.

4. Isolation of Flavonoids from Indigenous Plants and exploring their use as Food colorants by **Prof B. Kiremire**. Supported by Carnegie through Directorate of Research and Innovations.
5. Multi-disciplinary University Traditional Health Initiative (MUTHI): Building Sustainable Research Capacity on Plants for Better Public Health in Africa by **Prof B. Kiremire**. Supported by European Union
6. Antiplasmodial activities of some flavonoid and amodiaquine combinations by PhD student: Hoseah Miima Akala with Prof B. Kiremire.
7. Phytochemistry of selected medicinal plants used in the treatment of Malaria in Gulu district, Uganda by PhD student: Twinomuhwezi Hannington with Prof B. Kiremire.
8. Persistent organic pollutant and selected pesticide residues in the Ugandan watershed of Lake Victoria: Multi-matrix contamination trends and biomagnifications in the fish food web by PhD student: Kenneth Arineitwe with Prof B. Kiremire.

Publications

1. Øyvind M. Andersen , Monica Jordheim , Robert Byamukama , Angella Mbabazi , George Ogweng .Irene Skaar , **Bernard Kiremire** . “Anthocyanins with unusual furanose sugar (apiose) from leaves of *Synadenium grantii* (Euphorbiaceae)”. *Phytochemistry* 71 (2010) 1558–1563.
2. J. Wasswa, P. Nkedi-Kizza and **B. T. Kiremire**. “Characterization of Sorption of Endosulfan Isomers and Chlorpyrifos on Container Walls Using Mixed Solvent Systems”. *J. Agric. Food Chem.* 58(2010),7902–7907.
3. Patrick Ssebugere, John Wasswa, Jolocam Mbabazi, Steven A Nyanzi, **Bernard T Kiremire**, John A M Marco. “Organochlorine pesticides in soils from south-western Uganda” . *Chemosphere* 78(10)1250-1255, 2010.
4. Jolocam Mbabazi, H. Twinomuhwezi, J. Wasswa, **M. Ntale**, G. Mulongo, J. Kwetegyeka and K.H. Schroder. Speciation of heavy metals in water from the Uganda side of Lake Victoria. *International Journal of Environmental Studies* Vol. 67, No. 1, February 2010, 9-15.
5. Jolocam Mbabazi, John Wasswa and **Muhammad Ntale**. Equilibrium and kinetic studies of the stannate (IV)-polyol reaction. *Bull. Chem. Soc. Ethiop.* 2010, 24(3), 001-010.
6. John Sentongo, **Muhammad Ntale** and **Robinah Kyeyune**: *Teaching chemistry around the world*, pp 27-43, published by **Waxmann Verlag GmbH**, 2010, ISBN 978-3-8309-2296-4.

7. Okullo JBL, Omujal F, Agea JG, Vuzi PC, Namutebi A, Okello JBA, **Nyanzi SA** (2010) “Proximate and Mineral Composition of Shea (*Vitellaria paradoxa* C.F. Gaertn) fruit pulp in Uganda” **African Journal of Food Agriculture Nutrition and Development**, **10**, 4430 – 4443.
8. **Steven A. Nyanzi**, Maureen B. Isiko, Francis Kateregga, Wolfgang Schwack (2010) “ Second-derivative spectrometric determination of Urea in milk using the diacetyl monoxime Reagent” **Journal of Assoc Offic Anal Chem-Intern** **93**, 485 – 491.
9. Okullo JBL, Omujal F, Agea JG, Vuzi PC, Namutebi A, Okello JBA, **Nyanzi SA** (2010) “Physico-chemical characteristics of shea butter (*vitellaria paradoxa*) oil from the shea districts of Uganda” **African Journal of Food Agriculture Nutrition and Development**, **10**, 2070 – 2084.
10. Wanyama, P.A.G; **Kiremire, B.T**; Ogwok,P and Murumu,J.S.Characterization of colour from some dye-yielding plants in Uganda. *African Journal of Pure and Applied Chemistry*. 4(10), (2010)233-239.
11. Wanyama, P.A.G; **Kiremire, B.T**; Ogwok,P and Murumu,J.S.The effect of Different Mordants on Strength and stability of Colour Produced from Selected Dye-yielding Plants in Uganda. *International Archives of Applied Sciences and Technology*. 1(2), (2010) 81-92.

Awards

Carnegie Phase II Research Excellency Award (2010) for “Shea Nutrition and Post-harvest handling practices” for Okullo JBL, Omujal F, Agea JG, Vuzi PC, Namutebi A, Okello JBA, **Nyanzi SA**

SCHOOL OF BIOLOGICAL SCIENCES

DEPARTMENT OF BIOLOGY

Botany

Botany is one of the oldest units in the University established with a mandate to teach and carry out research in the scientific and related disciplines of plant sciences evolution, classification, function, heredity, propagation, biotechnology, utilization, environmental relationships, conservation of plants, fungi, bacteria and algae relevant to national development. The department runs programmes at undergraduate and graduate levels up to PhD. Courses at undergraduate level have been introduced in ethnobotany, conservation biology and a programme biotechnology is planned.

Staff

NO.	NAME	TITLE	STATUS
1	Dr. E. Kakudidi	Associate Professor	Permanent
2	Dr. G. Mutumba	Associate Professor	Contract
3	Prof. Oryem-Origa H	Professor	Contract
4	Ms. P. Tugume	Teaching Assistant	Contract
5	Dr. P. Mucunguzi	Assoc. Professor	Permanent
6	Dr. M. M Kamatenesi	Senior Lecturer	Permanent
7	Dr. C.Nyakoojo	Lecturer	Permanent
8	Dr. S. Nyakaana	Assoc. Professor	Permanent
9	Dr. J. Kalema	Senior Lecturer	Permanent
10	Ms. T. Tindyebwa	Teaching Assistant	Contract
11	Dr. A. Tugume	Lecturer	Permanent
12	Dr. P. Ipulet	Lecturer	Permanent
13	Prof. R. Bukenya-Ziraba	Professor	Permanent
14	Dr.M. Namaganda	Principal Assistant Curator	Permanent
15	Dr. P. Ssegawa	Herbarium Curator	Permanent
16	Dr.E. Nakamatte	Lecturer	Permanent
17	Mr. S. Ojelel	Teaching Assistant	Contract
18	Mr.G. Anywar	Teaching Assistant	Contract
19	Ms. M. Rugomwa	Principal Technician	Permanent
20	Mr. M. Zziwa	Senior Technician	Permanent
21	Mr. E. Niyonzima	Technician I	Permanent
22	Ms. Maganyi W. Olivia	Technician I	Permanent
23	Ms. Beatrice Namusisi	Laboratory Attendant	Permanent
24	Mr. W. Semasaka N.	Laboratory Attendant	Permanent
25	Mr. Stephen Ochepa	Laboratory Attendant	Permanent
26	Mr. H. Kiryose	Laboratory Assistant	Permanent
27	Mr. David Senoga	Laboratory Assistant	Permanent
28	Mr. G. Nakabale	Laboratory Assistant	Permanent
29	Mr. S. Ofwono	Laboratory Assistant	Permanent

NO.	NAME	TITLE	STATUS
30	Ms. J. Ndagire	Senior Copy Typist	Permanent
31	Ms. A. Namembwa	Cleaner	Permanent
32	Ms. Nabwami	Cleaner	Permanent
33	Ms. C. Auma	Cleaner	Permanent
34	Ms. A. Katusiime	Cleaner	Permanent
35	Ms. Nakimuli	Cleaner	Permanent
36	Mr. R. Kiluge	Groundsman	Permanent
37	Ms. M. Wanadi Iyundhu	Groundswoman	Permanent
38	Mr. F. Sekandi	Groundsman	Permanent

Workshops and Conferences attended

1. Prof. Bukenya –Ziraba R., Dr. Kakudidi, Dr. Kamatenesi, Mr. G. Anywar attended RISE-AFNNET; REGIONAL WORKSHOP ON NATURAL PRODUCTS, 23RD JULY, 2010: Protea Hotel, Lower Kololo, Kampala, Uganda
2. Dr. Kakudidi – National Stakeholders consultative workshop on the 4th draft national report to the Conservation on Biological Diversity, on 17th April 2009 at Grand Imperial Hotel, Kampala
3. Dr. E. Kakudidi – Technical workshop on the development of Biodiversity indicator in Uganda, Sept 2009. at Hotel Africana, Uganda
4. Dr. P. Ipulet - International Primatological Congress, Kyoto, Japan.
5. Prof. Oryem-Origa - Conservation Symposium organized by the Management of Queen Elizabeth National Park, UWA held at Mweya, QENP from Sept. 16-19, 2010. I presented a paper on “Research in Restoration of Pyrite Trail in QENP”.
6. Dr. Maud Kamatenesi - International Women Scientific Conference in Beijing China and presented a paper on 25th June to 2nd July 2010 entitled “Nutri-medicinal Plants usage in the Management of Immuno-compromised Ailments in Uganda.”

Research Projects/Activities

1. **Dr. P. Ipulet**
 - i) Regeneration in logged areas of Kalinzu forest reserve, western Uganda.
 - ii) Monitoring of phenology of *Warburgia* (Canallaceae) in Kalinzu forest reserve.
 - iii) Monitoring of phenology of *Ficus* species (Moraceae) in Kalinzu forest, Western Uganda.
 - iv) A survey of the pore fungi of Kalinzu forest.
 - v) Domestication (cultivation) of edible mushrooms

2. **Dr. E. K. Kakudidi.**

- i) Wild Food plants and secondary crops consumed among Households surrounding forests/woodlands and management practices on farm conservation in Nakasongola and Amuria districts funded by Makerere – Carnegie Institutional Development Program under the Theme: **Food, Nutrition and Value Addition**
- ii) Ethnobotanical, Bioassay and active compounds isolation from medicinal plants used for the treatment of tuberculosis in Lake Victoria Basin, Phase iii: Isolation, Characterization of pure compounds and formulation of active crude extracts from Medicinal plants used by traditional practitioners in Mukono District; funded by VICRES

3. **Prof. Oryem-Origa H**

Research on performance of some selected tree species in heavy metal absorption from polluted habitat in Kasese District, Western Uganda

4. **Dr. Maud Kamatenesi**

- i) Sida 2010-2014 Research project on “Integration of Nutri-Medicinal Plants as therapeutics in Health Care delivery in Uganda.”
- ii) Carnegie 2008-2011: Research award Nutri-Medicinal Plants analysis for Immuno compromised people including HIV/AIDS.
- iii) VICRES 2006-2011: Ethno-Botanical Products for Insect Pest Management in Subsistence Agriculture in The Lake Victoria Basin.

5. **Millennium Science Initiative Project for support towards Bachelor of Biotechnology**

Publications

- 1. **Ipulet P.** (2010). Ecological, Industrial and Pathogenic fungi. In - *Baseline Report on state of biodiversity in the Nile Uganda*. Nile Basin Initiative. ISBN: 978-9970-148-29-5.
- 2. Jørgensen Aslak, Henry Madsen, Allen Nalugwa, **Silvester Nyakaana**, David Rollinson, J. Russell Stothard, Thomas K. Kristensen (2010) A molecular phylogenetic analysis of *Bulinus* (Gastropoda: Planorbidae) with conserved nuclear genes. *Zoologica Scripta*, no. doi 10.1111/j.1463-6409.2010.00458.x
- 3. Kallinen AK, Lindberg IL, **Tugume AK**, Valkonen JPT (2009) Detection, distribution, and genetic variability of *European mountain ash ringspot-associated virus*. *Phytopathology* **99**:344–352.

4. **Kalema J., M. Namaganda, P. Ssegawa, C. Kabuye, O. Maganyi & P. Mucunguzi.** (2010). Higher plants. In - *Baseline Report on state of biodiversity in the Nile Uganda*. Nile Basin Initiative. ISBN: 978-9970-148-29-5.
5. Mbanzibwa DR, Tian YP, **Tugume AK**, Mukasa SB, Tairo F, Kyamanywa S, Kullaya A, Valkonen JPT (2009) Genetically distinct strains of *Cassava brown streak virus* in the Lake Victoria basin and the Indian Ocean coastal areas of East Africa. *Archives of Virology* **154**:353–359.
6. Mbanzibwa DR, Tian YP, **Tugume AK**, Mukasa SB, Tairo F, Kyamanywa S, Kullaya A, Valkonen JPT (2010) Simultaneous virus-specific detection of the two cassava brown streak-associated viruses by RT-PCR reveals wide distribution in East Africa, mixed infections, and infections in *Manihot glaziovii*. *Journal of Virological Methods* doi: 10.1016/j.jviromet.2010.09.024. In press.
7. Mulumba J. W and **E. Kakudidi** (2010) Numerical taxonomic study of *Acacia senegal* (Fabaceae) in the cattle corridor of Uganda. *South African Journal of Botany* **76** (2010) 272 – 278.
8. Muwanga, A., **Oryem_Origa, H.**, Makara, A., Hartwig, T., Ochan, A., Owor, M., Zachman, D and Pohl, W. 2009. Heavy Metals and Their Uptake by Plants in the River Nyamwamba-Rukoki-Lake George System, Western Uganda. *African Journal of Science and Technology (AJST)*. Vol. **10**, No. 2 pp. 60-68.
9. Nalugwa Allen, Aslak Jørgensen, **Silvester Nyakaana**, Thomas K. Kristensen (2010) Molecular phylogeny of *Bulinus* (Gastropoda: Planorbidae) reveals the presence of three species complexes in the Albertine Rift freshwater bodies. *International Journal of Genetics and Molecular Biology*, **2(7)**: 130-139
10. Nalugwa Allen, Thomas K. Kristensen, **Silvester Nyakaana**, Aslak Jørgensen (2010) Mitochondrial DNA Variations in Sibling Species of the *Bulinus truncatus/tropicus* Complex in Lake Albert, Western Uganda. *Zoological Studies* **49(4)**: 515-522
11. **Namaganda, M.**, Krekling, T. & Lye, K. A. 2009. Leaf anatomical characteristics of Ugandan species of *Festuca* L. (Poaceae). *South African Journal of Botany* **75**: 52-59.
12. Oryema Christine, **Remigius Bukenya- Ziraba** , Nelson Omagor and Alfonse Opio . 2010. Medicinal plants of Erute county, Lira district, Uganda, with particular reference to their conservation. *African Journal of Ecology_2*, Pages 285 – 298 (Published Online: 7 Jan 2010).
13. Rollinson David, Joanne P. Webster, Bonnie Webster, **Silvester Nyakaana**, Aslak Jørgensen, J. Russell Stothard (2009). Genetic diversity of schistosomes and snails: significance for control. *Parasitology*, **136(13)**: 1801-1811

14. Sekabira K, **H. Oryem-Origa**, T. A.Basamba, **G. Mutumba** and **E. Kakudidi**. 2010a. Assessment of Heavy Metal Pollution in the Urban Stream Sediments and its Tributaries. *Int. J. Environ. Sci. Tech.* **7** (3), 435-446
15. Sekabira K, **H. Oryem-Origa**, T. A.Basamba, **G. Mutumba** and **E. Kakudidi**. 2010b. Assessment of Heavy Metal Pollution in the Urban Stream Sediments and its Tributaries. *Int. J. Environ. Sci. Tech.* **7** (4), 759-770
16. Sekabira K, **H. Oryem-Origa**, T. A.Basamba, **G. Mutumba** and **E. Kakudidi**. 2011 Application of algae in biomonitoring and phytoextraction of heavy metal contamination in urban stream water. *Int. J. Environ. Sci. Tech.* **8** (1) 115-128. Winter 2011, ISSN: 1735-1472.
17. Sekabira K, **H. Oryem-Origa**, T. A.Basamba, **G. Mutumba** and **E. Kakudidi**. (2010) Heavy metal extraction by *Commelina benghalensis* (L.) and *Cynodon dactylon* (L) in the Urban Stream Sediments. Intern.Journ Of Env. and Tech. Vol 8 No.4 Quartely Publication ISSN 1735-1472
18. Stothard, J.R., Webster, B.L., Weber, T., **Nyakaana, S.**, Webster, J.P., Kazibwe, F., Kabateraine, N.B., Rollinson, D. (2009). Molecular epidemiology of *schistosoma mansoni* in Uganda: DNA barcoding reveals substantive genetic diversity within Lake Albert and Victoria populations. *Parasitology*, **136(13)**: 1813-24.
19. **Tugume A.K**, Mukasa SB, Valkonen JPT (2008) Natural wild hosts of *Sweet potato feathery mottle virus* show spatial differences in virus incidence and virus-like diseases in Uganda. *Phytopathology* **98**:640–652.
20. **Tugume A.K**, Mukasa SB, Kalkkinen N, Valkonen JPT (2010) Recombination and selection pressure in the ipomovirus *Sweet potato mild mottle virus* (Potyviridae) in wild species and cultivated sweetpotato in the centre of evolution in East Africa. *Journal of General Virology* **91**:1092–1108.
21. **Tugume AK** (2010) The significance of wild plants in the evolutionary ecology of three major viruses infecting cultivated sweetpotato in Uganda. PhD Thesis, University of Helsinki, Helsinki – Finland, pp 86. ISBN 978-952-10-6059-5 (PAPERBACK), ISBN 978-952-10-6060-1 (PDF).
22. **Tugume AK**, Cuéllar WJ, Mukasa SB, Valkonen JPT (2010) Molecular genetic analysis of virus isolates from wild and cultivated plants demonstrates that East Africa is a hotspot for the evolution and diversification of *Sweet potato feathery mottle virus*. *Molecular Ecology* **19**:3139–3156.
23. Tusiime F.M. & *C. Nyakoojo*. (2010). Lower plants. In - *Baseline Report on state of biodiversity in the Nile Uganda*. Nile Basin Initiative. ISBN: 978-9970-148-29-5.

24. Wittemyer George, John Okello, Henrik Rasmussen, Peter Arctander, **Silvester Nyakaana**, Iain Douglas Hilton and Hans Siegismund (2009). Where sociality and relatedness diverge: The genetic basis for hierarchical social organization in African elephants. *Proceedings of the Royal Society B*, **276(1672)**: 3513-21.

Zoology

Zoology is a branch of biology that mainly deals with the study of animals and animal-plant interactions. It is one of the oldest disciplines of science at Makerere University. It covers a wide range of topics. Present emphasis is on aspects that are directly relevant to the economic development of Uganda. These include the study of all invertebrate and vertebrate groups, wildlife, ecology, fisheries and aquatic science, entomology and parasitology. These are key areas of science in the agriculture and livestock raising industries of Uganda.

In Fisheries and Aquatic Sciences, the Department gives specialized training in fisheries science in Uganda, in particular and in East Africa in general. Otherwise before 2001 this specialized training was only offered at Diploma level at the Training Institute at Entebbe. However, it is thought and highly desired that if full and well-grounded training and research are to be done in the growing sectors of “Fisheries” and “Water”, a fully fledged separate department should be formed/established as the “Department of Fisheries and Aquatic Sciences”. And presently and in future it is hoped doing training and research in the fields:

1. Aquaculture
2. Fisheries Science, Management and Technology
3. Fish Processing and Hygiene
4. Aquatic Ecology and Resources, and
5. Water Science

Other supportive disciplines are studied in the department. These include cell biology and genetics, evolutionary biology, endocrinology and reproductive physiology, immunology and microbiology, animal behaviour, environmental science, data collection and analysis.

Staff

NO.	NAME	TITLE	STATUS
1	Dr. A. M Akol	Senior Lecturer / Head of Department	Permanent
2	Dr. F. Bugenyi	Assoc. Professor	Contract
3	Dr. F.J. Muyodi	Senior Lecturer	Permanent
4	Mr. K. G. Kubiriza	Teaching Assistant	Contract
5	Prof. J.B. Kaddu	Professor	Contract
6	Dr. I. B. Rwego	Lecturer	Permanent
7	Dr. Efitre Jackson	Lecturer	Contract

NO.	NAME	TITLE	STATUS
8	Dr. C. Masembe	Senior Lecturer	Permanent
9	Mr. J.J. Kisakye	Assistant Lecturer	Permanent
10	Mr. P. Akoll	Teaching Assistant	Contract
11	Dr. D. Baranga	Assoc. Professor	Contract
12	Ms. J. Nattabi Kigongo	Assistant Lecturer	Permanent
13	Dr. Samuel Mugisha	Senior Lecturer	Permanent
14	Dr. Chris Bakuneeta	Lecturer	Permanent
15	Dr. G.Isabirye-Basuta	Assoc. Professor	Contract
17	Dr. E. Sande	Lecturer	Permanent
18	Dr. Gladys Bwanika	Lecturer	Permanent
19	Mr. R. Odongo	Assistant Lecturer	Permanent
20	Dr. R. Kityo	Museum Curator	Permanent
21	Dr. A. Kezimbira-Miyingo,	Lecturer	Permanent
22	Ms. N. Ndagire	Senior Technician/Ag. Chief Technician	Permanent
23	Mr. A. Walyelo Alex	Technician I	Permanent
24	Ms. D. Nampiima	Laboratory Assistant	Permanent
25	Ms. E. Mulwana	Laboratory Assistant	Permanent
26	Mr. B. Rugasira	Assistant Technician	Permanent
27	Ms. V. Namagala	Assistant Technician	Permanent
28	Mr. D. Nsubuga	Laboratory Assistant I	Permanent
29	Mr. F. Ebonga	Laboratory Assistant I	Permanent
30	Mr. J. Muchunguzi	Laboratory Assistant	Permanent
31	Mr. C. Abba	Assistant Technician	Permanent
32	Mr. T. Mangeni	Laboratory Assistant	Permanent
33	Mr. D. Walusimbi	Laboratory Attendant	Permanent
34	Ms. Sarah Nassuna	Laboratory Attendant	Permanent
35	Ms. R. Nabulega	Laboratory Attendant	Permanent
36	Ms. G. Oyo	Laboratory Attendant	Permanent
37	Ms. G. Namuli	Laboratory Attendant	Permanent
38	Ms. E. Kobusingye	Principle Copy Typist	Permanent
39	Mr. C. Sebidde	Library Assistant	Permanent

Workshops and conferences attended

Dr. Charles Masembe: Conference on “Pastoralism and Climate Change Adaptation in Africa”- Egerton University, Kenya.

Research Activities/Projects

1. Conservation and Management of below ground biodiversity; the project was implemented with Tropical Soil Biology Fertility (TSBF) Institute of CIAT from 2003 to 2010 funded by the Global Environment Facility (GEF) and UNEP.

2. Fruit Flies in Mangoes under implementation from 2010 to 2013 with Kawanda Agricultural Research Institute funded by the Millennium Science Initiative.
3. Taxonomic EAFRINET networks LOOPS of BioNet International UVIMA from 2009 to 2011. The expected output is development of lucid keys and fact sheets for pest, pollinators and Invasive alien Species (IAS).
4. Linking Eco-systems services to poverty using a justice framework, 2010 to 2013. The project is a collaboration with the University of East Anglia, UK and the National Environment Council UK. Uganda, China and India are the field sites under the project.
5. Regional Research Project 'Project Title: Water quality and its impact on fish abundance and socio-economic well being of the riparian communities of Lake Victoria'. VicRes Project, SIDA/Sarec. 2007 – Present (On-going).
6. FRIEND / Nile Ecological hydrology Project, UNESCO Cairo Office Project (Collaborating countries of Nile basin: Uganda, Kenya, Tanzania, Ethiopia, Sudan, Egypt and Belgium Counterpart, Coordinated by Uganda Ministry of water and Environment). 2008 – 2011. Project facilitates two researchers from each country to collect relevant data on the Nile Basin.
7. Enhancement of hatchery-based African Catfish (*Clarius gariepinus*) seed production using selected zooplanktons as live food (**Dr. Gladys Bwanika** – Principal Investigator). supported by National Agriculture Research Organisation Competitive Grants.
8. Improving livelihoods of fisher communities in the Lake Victoria basin: A case study of selected landing sites in Tanzania and Uganda (**Dr. Gladys Bwanika** – Principal Investigator). Supported by VicRes.
9. Development of culture technologies for increased and sustainable production of Nile perch (*Lates niloticus*) (Linnaeus, 1758) (**Dr. Gladys Bwanika** – Principal Investigator). Supported by Millenium Science Initiative grant.
10. Livestock-Wildlife Diseases in East Africa: interplay and control -DANIDA. Dr. C. Masembe - Co-Investigator.
11. Understanding the Persistence of Foot-and-Mouth Disease in Uganda: the case of western Uganda (RUFORUM) **Dr. C. Masembe** - Co-Investigator.
12. Next generation methods to preserve farm animal biodiversity by optimizing present and future breeding options. (EU-FP7). **Dr. C. Masembe** - Co-Investigator.
13. Fisheries and aquaculture adaptation and conservation strategies in Uganda's changing climate (RUFORUM). **Dr. C. Masembe** - Principal Investigator.

Publications

1. Mwiine FN, Ayebazibwe C, Olaho-Mukani W, Alexandersen S, Balinda SN, **Masembe C**, Ademun Okurut AR, Christensen LS, Sørensen KJ, Tjørnehøj K, (2010). Serotype Specificity of Antibodies against Foot-and-Mouth Disease Virus in Cattle in Selected Districts in Uganda. *Transboundary and Emerging Diseases* 57, 365-374.
2. Balinda S, Siegismund H, Muwanika V, Sangula A, **Masembe C**, Ayebazibwe C, Normann P, Belsham G, (2010). Phylogenetic analyses of the polyprotein coding sequences of serotype O foot-and-mouth disease viruses in East Africa: evidence for interserotypic recombination. *Virology Journal*, 7, 199.
3. Sangula AK, Siegismund HR, Belsham GJ, Balinda SN, **Masembe C**, Muwanika VB, Low diversity of foot-and-mouth disease serotype C virus in Kenya: evidence for probable vaccine strain re-introductions in the field. *Epidemiol Infect*, 1-8*.
4. Balinda S, Siegismund H, Muwanika V, Sangula A, **Masembe C**, Ayebazibwe C, Normann P, Belsham G, (2010). Phylogenetic analyses of the polyprotein coding sequences of serotype O foot-and-mouth disease viruses in East Africa: evidence for interserotypic recombination. *Virology Journal*, 7, 199.
5. Balinda SN, Sangula AK, Heller R, Muwanika VB, Belsham GJ, **Masembe C**, Siegismund HR, (2010). Diversity and transboundary mobility of serotype O foot-and-mouth disease virus in East Africa: Implications for vaccination policies. *Infection, Genetics and Evolution* 10, 1058-1065*.
6. **Muyodi, F.J.** (2010). Microbes. In: *Baseline Report on State of Biodiversity in the Nile Uganda 2010, Edited by J.B. Kaddu and H. Busulwa. A production of the Wetlands and Biodiversity Conservation Component of the Nile Transboundary Environment Action Project.* Nile Basin Initiative Secretariat, pp. 65-66. ISBN: 978-9970-148-29-5.
7. **Masembe C** (2010) The genomic evolution of African mammals: implications for adapting livestock production and disease control to the changing climate. CCAA-supported Conference on “Pastoralism and Climate Change Adaptation in Africa”- Egerton University, Kenya.

Department of Biochemistry and Sports Science

The department of Biochemistry and Sports Science is one of the newly formed departments under the School of Biological Sciences following the formation of the College of Natural Sciences.

Biochemistry

Biochemistry is the study of the molecular basis of life. There is much excitement and activity in biochemistry today for several reasons; first the chemical bases of many central processes are now understood, secondly, it is now known that common molecular patterns and principles underlie the diverse expressions of life, thirdly, biochemistry is profoundly influencing medicine. The molecular mechanisms of many diseases such as sickle-cell anaemia and numerous inborn errors of metabolism have been elucidated. The rapid development of powerful biochemical concepts and techniques in recent years has enabled investigators to tackle some of the most challenging and fundamental problems in biology and medicine.

At Makerere University, biochemistry as an undergraduate degree subject has also developed with the rapid growth in knowledge and activity. Attempts have been made to remain abreast with developments in biochemistry giving students training that is practical and relevant to the needs of the country.

Staff

Serial No.	Name	Designation	Status
1	Dr. F.Kironde	Associate Professor	Contract
2	Dr. J.C.K.Enyaru	Associate Professor	Contract
3	Dr. J. Kyambadde	Senior Lecturer / Head of Department	Permanent
4	Dr. A. Rwendeire	Senior Lecturer	Contract
5	Dr. J. Hawumba	Lecturer	Permanent
6	Dr. A. Nandutu Masawi	Lecturer	Permanent
7	Dr. D. Isabirye	Lecturer	Permanent
8	Dr. P. Vuzi	Lecturer	Permanent
9	Dr. G. Gargent	Lecturer	Permanent
10	Dr. V.P. Alibu	Lecturer	Permanent
11	Ms. R. Baingana	Lecturer	Permanent
12	Mr. S.W.Wamutu	Assistant Lecturer	Permanent
13	Mr. A.S.P. Balyedhusa	Assistant Lecturer	Permanent
14	Mr. D. Kasozi Matovu	Assistant Lecturer/ Study Leave	Permanent
15	Mr. J. Isanga	Assistant Lecturer	Permanent

16	Mr. R. Gumisiriza	Teaching Assistant	Permanent
17	Mr. J. Omara	Teaching Assistant	Contract
18	Ms. H. Butungi	Teaching Assistant	Contract
19	Ms C. Aguttu	Teaching Assistant	Contract
20	Ms. S.F. Sanyu	Teaching Assistant	Contract
21	Mr. W.P.Owilla	Chief Technician	Permanent
22	Mr. J.F. Jjuuko	Principal Technician	Permanent
23	Mr. P.J. Ojambo Nyegenya	Senior Technician	Permanent
24	Ms. R. Nabacwa	Senior Technician	Permanent
25	Mr. S. Lutwama	Technician I	Permanent
26	Mr. K. Mukisa	Technician I	Permanent
27	Mr. G. Mugenyi	Technician II	Permanent
28	Mr. T. Abok	Technician II	Permanent
29	Mr. E. Musali	Technical Assistant	Permanent
30	Mr. A.M. Muteijuka	Technical Assistant	Permanent
31	Mr. S. Mubiru	Laboratory Assistant	Permanent
32	Mr. E. Musisi	Laboratory Assistant	Permanent
33	Mr. A. Bukenya	Laboratory Assistant	Permanent
34	Mr. F. Banja	Laboratory Assistant	Permanent
35	Ms. P. Namande	Laboratory Assistant	Permanent
36	Ms. F. Kabahenda	Laboratory Assistant	Permanent
37	Ms. C. Nuwagaba	Laboratory Assistant	Permanent
38	Ms. B. Nabisubi	Laboratory Attendant	Permanent
39	Ms. R. Nakafeero	Laboratory Attendant	Permanent
40	Ms. F. Mulinda	Laboratory Attendant	Permanent
41	Mr. F. Ssemuju	Laboratory Attendant	Permanent
42	Ms. R. Kavulu	Personal Secretary	Permanent
43	Ms. B. Kainza	Cleaner	Permanent
44	Mr. G. Kaleera	Cleaner	Permanent

Research Projects/Activities

1. Malaria Vaccine Trial is being organized and will take place in Iganga early 2011
2. Mosquito in sectary was established at the Department of Zoology in collaboration with Dr. J.B Kaddu and is now operational.
3. Project on “Integrated Process for Sustainable Agro-process Waste treatment and Climate Change Mitigation in Eastern Africa” with support from Sida-BioInnovate Africa programme was finalized and scheduled to commence January 2011
4. Project on “Development and application of xenomonitoring tools in human African trypanosomiasis control programmes in endemic countries” supported by Bill & Melinda Gates Foundation has completed two years and is in the process of receiving year 3 funding

5. Transcriptomics and proteomics in human sleeping sickness pathogenesis and diagnosis (DFG)
6. Development and application of diagnostic tests for trypanosomes in tsetse flies
7. Biomarker discovery for staging sleeping sickness

Publications

- 1: Blomqvist K, Normark J, Nilsson D, Ribacke U, Oriquiriza J, Trillkott P, Byarugaba J, Egwang TG, Kironde F, Andersson B, Wahlgren M. var gene transcription dynamics in *Plasmodium falciparum* patient isolates. *Mol Biochem Parasitol.* 2010 Apr; 170(2):74-83. Epub 2009 Dec 16. PubMed PMID: 20006652.
- 2: Chene A, Donati D, Orem J, Mbidde ER, Kironde F, Wahlgren M, Bejarano MT. Endemic Burkitt's lymphoma as a polymicrobial disease: new insights on the interaction between *Plasmodium falciparum* and Epstein-Barr virus. *Semin Cancer Biol.* 2009 Dec;19(6):411-20. Epub 2009 Nov 6. Review. PubMed PMID: 19897039.
- 3: Wilén M, Buwembo W, Sendagire H, Kironde F, Swedberg G. Cotrimoxazole resistance of *Streptococcus pneumoniae* and commensal streptococci from Kampala, Uganda. *Scand J Infect Dis.* 2009;41(2):113-21. PubMed PMID: 19140088.
4. Isanga, J., & Zhang, G. (2009). Production and Evaluation of Some Quality Parameters of Peanut Milk Yoghurt. *LWT – Food Science & Technology*, 42(6), 1132 – 1138.
5. Kalibbala H.M., Wahlberg, O., Hawumba, J.F. (2009). The impact of *Moringa oleifera* as a coagulant aid in the removal of trihalomethane (THM) precursors and iron from drinking water. *Water Science and Technology: Water Supply*, 9.6: 707 -714.
6. Natalia Tiberti, Alexandre Hainard, Veerle Lejon, Xavier Robin, Dieudonne Mumba Ngoyi, Natacha Turck, Enock Matovu, **John Enyaru**, Joseph Mathu Ndungu, Alexander Scherl, Loic Dayon, and Jean-Charles Sanchez (2010). Discovery and verification of osteopontin and beta-2-microglobulin as promising markers for staging human African trypanosomiasis. *Mol Cell Proteomics* *mcp.M110.001008* First Published on August 19, 2010, doi:10.1074/mcp.M110.001008
7. **Enyaru, John C**, Johnson O. Ouma, Imna I. Malele, Enock Matovu, Daniel K. Masiga (2010). Landmarks in the evolution of technologies for identifying trypanosomes in tsetse flies, **Trends in Parasitology**, 26:388- 394
8. Jon S. Beadell, Chaz Hyseni, Patrick Abila, **John C. K. Enyaru**, Johnson Ouma, Yassir O. Mohammed, Loyce M. Okedi, Serap Aksoy, Adalgisa Caccone (2010). Phylogeography and population structure of *Glossina fuscipes fuscipes* in Uganda: implications for control of tsetse. **PLoS Neglected Tropical Diseases**, 4: e636.

9. Njiru ZK, Ouma JO, **Enyaru JC**, Dargantes AP (2010). Loop-mediated Isothermal Amplification (LAMP) test for detection of *Trypanosoma evansi* strain B. **Exp. Parasitol.** 125(3):196-201.

Sports Science

Sports Science is geared towards producing graduates who are equipped with adequate scientific knowledge and skills to serve in the sports industry and enhance development of both elite and mass sports, for all individuals irrespective of age, physical ability or level of skill both in and outside Uganda.

Staff

No.	Names	Title	Employment Terms
1	Ms. S. Kasoma	Assistant Lecturer	Permanent
2	Ms. A. Nankwanga	Assistant Lecturer	Permanent
3	Mr. D.D. Bamweyana	Teaching assistant	Contract
4	Mr. B. Wandera	Teaching assistant	Contract
5	Ms. B. Nakabazzi	Teaching assistant	Contract
6	Mr. L. Mugisha	Teaching assistant	Contract
7	Ms. W. Nakazibwe	Teaching assistant	Contract
8	Mr. S.K. Oola	Teaching assistant	Contract

ANNEX I

Staff in the Dean's Office for the year 2010

NO.	NAME	TITLE	STATUS
1	Prof. J.Y.T. Mugisha	Dean	Permanent
2	Dr. Maud Kamatenesi	Deputy Dean, Research	Permanent
3	Dr. John M. Mango	Deputy Dean, Academics	Permanent
4	Mr. Patrick Okello	Senior Admin Assistant	Permanent
5	Ms. Josephine Ataro	Administrative Assistant	Permanent
6	Ms. Grace Apili	Administrative Assistant	Permanent
7	Mr. Joseph Senyonga	Computer Technician	Temporary
8	Mr. Mukiibi Semakula	Principal Technician	Permanent
9	Mr. E. Habyarimaana	Technician II	Permanent
10	Mr. Yekosani Nandala	Custodian	Permanent
11	Ms. M. Kairamibwa	Personal Secretary	Permanent
12	Ms. Joan Kakongoro	Sen. Copy Typist	Permanent
13	Ms. Juliet Namigadde	Copy Typist	Temporary
14	Ms. Miriam Ndimala	Accounts Clerk	Permanent
15	Mr. Mazzi Sserwada J.	Workshop Assistant	Permanent
16	Mr. Francis Mbuuse	Driver	Permanent
17	Mr. Collin Mukasa	Messenger	Permanent
18	Mr. Charles Kiyingi	Machine Operator	Permanent
19	Mr. R. Mfitumukiza	Cleaner	Permanent
20	Mr. C. Munyamasoko	Cleaner	Permanent
21	Ms. Allen Nalyazi	Cleaner	Permanent
22	Ms. Margret Namwase	Cleaner	Permanent
23	Ms. Ruth Nakaggwa	Sanitary Cleaner	Permanent
24	Ms. Rose Amado	Sanitary Cleaner	Permanent
25	Ms. Anne Nakintu	Sanitary Cleaner	Permanent