



PAN AFRICA
CHEMISTRY NETWORK



NMR Workshop - Hands on Training July 31st – 4th August 2023

Department of Chemistry, University of Nairobi, Faculty of Science and
Technology, Chiromo Campus, Nairobi, Kenya

Programme

Day 1: Monday, July 31st 2023

Venue: Faculty of Science and Technology Board Room

Time	Activity	Facilitator
08:30 – 09:00	Arrival & Registration of Participants	Erick Awas / Alice Ndekei / Irene Nyakio

Opening Ceremony

Master of Ceremony: Charles Mirikau

Time	Institution	Speaker
09:00 – 09:05	Chairman, Department of Chemistry, UoN	Prof. D. Kariuki
09:05 – 09:10	PACN, Kenyan hub	Dr. Solomon Derese
09:10 – 09:15	Assoc. Dean, Faculty of Science and Technology, UoN	Prof. F. Mulaa
09:15 – 09:20	Dean, Faculty of Science and Technology, UoN	Prof. L. Kerubo
09:20 – 09:30	Royal Society of Chemistry	Dr. Andrew Schore
09:30 – 09:40	Associate VC Research, Innovation and Enterprise, UoN	Prof. M. J. Hutchinson
09:40 – 09:50	CEO, National Research Foundation, Kenya	Prof. Dickson Andala
09:50 – 09:55	Vote of Thanks	Prof. Abiy Yenesew
09:55– 10:00	Photo session	
10.00 – 10:30	Tea break	

Training Session 1		
Venue: Room 119, Department of Chemistry		
10:45 - 13:00	Introduction to NMR Spectroscopy - Lecture	Mirikau
	Theory of NMR Spectroscopy	
13:00 - 14:00	Lunch (Chiromo Campus Club)	
Training Session 2		
14:00 -15:00	Factors affecting Chemical Shifts in ^1H NMR Spectroscopy - Lecture	Abiy/Solomon
15:00 - 16:00	Spin-Spin Splitting in ^1H NMR Spectroscopy - Lecture	Abiy/Solomon
16:00 - 17:00	Simple ^1H NMR problem solving - Practice	Kerubo/Solomon/Mwaniki
17:00 - 17:30	Open discussion and close for the day Tea/Coffee Break	Onyari/Kerubo

Homework I: Simple ^1H NMR problems

Day 2: Tuesday, 1st August 2023

Training Session 3		
Venue: Room 119, Department of Chemistry		
08:30 - 09:00	Discussion of previous problems	Kerubo/Solomon/Mwaniki
09:00 - 10:00	^{13}C NMR Spectroscopy - Chemical Shifts, DEPT, APT - Lecture	Abiy/Solomon/ Mwaniki
10:30 - 11:00	Tea/Coffee Break	
11:00 -13:00	Problem solving session on ^{13}C NMR spectroscopy	Abiy/Solomon/Mwaniki
13:00 - 14:00	Lunch	
Training Session 4		
14:00 – 15:15	G1: NMR Laboratory (sample preparation, running and processing)	Ivan/Mirikau
	GII: Problem solving session on ^{13}C NMR spectroscopy	Abiy/Solomon/Mwaniki
15:15 - 16:30	GII: NMR Laboratory (sample preparation, running and processing)	Ivan/Mirikau
	G1: Problem solving session on ^{13}C NMR spectroscopy	Abiy/Solomon/Mwaniki

16:30 - 17:00	Open discussion and close for the day (Tea/Coffee Break)	Onyari/Kerubo
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Homework II: Combined ^1H NMR and ^{13}C NMR problems

Day 3: Wednesday, 2nd August 2023

Training Session 5		
08:30 - 09:00	Discussion of previous problems	Abiy/Solomon/Mwaniki
09:00 - 10:30	Introduction to 2D NMR Spectroscopy: H,H COSY, HSQC/HMQC, HMBC - Lecture	Abiy/ Mwaniki/Solomon
10:30 -11:00	Tea/Coffee Break	
11:00 -12:00	Review of Stereochemistry - Lecture	Solomon/Ndakala
12:00 -13:00	GII: Running and Processing of 2D NMR	Ivan/ Ibrahim/Mirikau
	GI: Interpretation of Combined NMR Spectra - Practice	Abiy/Kerubo/Solomon
13:00 - 14:00	Lunch	
Training Session 6		
14:00 - 15:00	Special 1D NMR, NOEDIF, NOESY/ROESY - Lecture	Abiy/Mwaniki/Solomon
15:00 - 15:30	Practice of Stereochemistry Problems	Solomon/Ndakala
15:30 - 16:30	GII: Interpretation of Combined NMR Spectra - Practice	Abiy/Mwaniki/Solomon
	GI: Running and Processing of 2D NMR	Ivan/ Ibrahim/Mirikau
16:30 – 17:00	Open Discussion and close for the day (Tea/Coffee Break)	Onyari/Kerubo

Homework III: Combined Spectroscopy Problems

Day 4: Thursday, 3rd August 2023

Training Session 7		
08:30 - 09:00	Discussion of previous problems	Abiy/Solomon/Ndakala
09:00 - 10:30	Determination of Relative Configuration by NMR - Lecture	Abiy/Mwaniki/Solomon
10:30-11:00	Tea/Coffee Break	
11:00-13:00	Interpretation of Combined NMR Spectroscopy continued – Practice	Abiy/Mwaniki/Solomon
13:00 - 14:00	Lunch	
Training Session 8		
14:00 - 15:30	GI: Running and Processing of 2D NMR - Practice	Ibrahim/Ivan

	GII: Relative Configuration by NMR - Practice	Abiy/Mwaniki/Solomon
15:30 - 17:00	GII: Running and Processing of 2D NMR - Practice	Ibrahim/Ivan
	GI: Relative Configuration by NMR - Practice	Abiy/Mwaniki/Solomon
17:00 – 17:30	Open Discussion and close for the day (Tea/Coffee Break)	Abiy/Kerubo

Day 5: Friday, 4th August 2023

Training Session 9		
Venue: Room 119, Department of Chemistry		
08:30 - 9:00	Discussion of previous problems	Solomon/Ndakala/ Kerubo
9:00 - 10:30	NMR in Qualitative and Quantitative Analysis - Lecture	Onyari
10:30 - 11:00	Tea/Coffee Break	
11:00 - 12:00	Interpretation of Combined NMR Spectroscopy continued – Final Session	Kerubo/Mwaniki/ Solomon
12:00 - 13:00	Closing Ceremony and Award of Certificates	Onyari/Kariuki/ Mulaa/Kerubo
13:00 - 14:00	Lunch and Departure	