DEPARTMENT OF CHEMISTRY
OBAFEMI AWOLOWO UNIVERSITY, ILE-IFE, NIGERIA.

INTERNAL MEMO

Please find below the distribution of topics and allocation of time for CHM 101 Harmattan semester 2019/2020 session. The online classes will be taught in Modules which will be taken weekly.

S/N	Topics / Duration	Course Description	Instructors	WEEK
1	Introduction (5 Lectures)	Methods of science: Measurement and Precision. Significant figures, errors in quantitative measurements, nature of matter, elements and compounds. Types of chemical reactions.	Prof. E.A Oluyemi	1
2.	Stoichiometry I (5 Lectures)	Chemical formulae and equations, simplest formulae, molecular formulae, mole concept, calculation of formulae and equations from gravimetric data and vice-versa, ionic equations for neutralization and precipitation reactions. Concentrations, Molarity and volumetric calculations based on stoichiometry coefficients, oxidation and reduction as electron transfer, oxidation number, balancing of equations including balancing of redox equations by electron transfer equality.	Prof. J.A.O. Oyekunle	2-3
3.	Stoichiometry II (5 Lectures)	Volumetric analysis including relevant calculations. Preparation of standard solutions, molarity and volumetric coefficients in neutralization, redox precipitation and complexation reactions.	Prof. J.A.O. Oyekunle	4
4	Atomic theory and nature of atoms (5 Lectures)	Dalton atomic theory, atomic weight, Avogadro's number, structure of atom, divisibility of atom. Cathode rays, mass spectrometer, contributions to atomic structure by Bohr, Thompson, Morseley and Rutherford. Discovery of nucleus, electronic energy levels and Periodic Table, atomic size, Ionization potentials, Electron affinity, Ionic radii and Electronic configuration	Prof. O. Ogunfowokan	5
5.	Chemical equilibrium (6 Lectures)	The equilibrium state, Mass action, equilibrium constant calculations. Equilibrium changes, dissociation of water, pH of acids and bases, buffer solutions, Indicator theory, solubility of ionic solids, solubility products, precipitation reactions (using solubility products) calculations as applied to qualitative and quantitative analysis. Common-ion-effect.	Prof. O. Owoyomi	6-7

6.	Thermochemistry (5 Lectures)	Balancing of intermolecular forces. Hydrogen bonding, order-disorder phenomenon, entropy, free energy, energy effect, exothermic and endothermic changes, enthalpy of reaction. Hess's law of enthalpy summation (with relevant calculations), heats of neutralization, combination and formation, bond dissociation energies, relevant calculations, free energy and spontaneous change.	Prof. (Mrs.) Ogunlusi	8-9
7.	Electrochemistry (5 Lectures)	Electrical units, Ohm's law, Faraday's law of electrolysis, Galvanic cells, Standard Half-Cell potentials and reactions. Concentration effects (Nernst equation). Redox reactions, oxidation potential treated in terms of free energy change, cells and batteries.	Prof. O. Soriyan	10
8.	Kinetics (5 Lectures)	Introduction to chemical kinetics, Basic definitions of order of reaction, molecularity, reactions rates and simple reaction mechanism, Activation energy and kinetic theory.	Prof. O. Soriyan	11
9.	Radioactivity (3 Lectures)	Types of radioactive disintegration, Nuclear fission and fusion, Detection of radioactivity, Uses of radio-isotopes.	Prof. E.A. Oluyemi	12

Thank you.

Prof. (Mrs.) G.O. Ogunlusi
Coordinator

cc: HOD Chemistry