TIMETABLE CH1011 SEMESTER 2 2007

General Chemistry (stoichiometry and organic)

Week1

30/7	Mon	L	Lect1.ppt 14	Intro. atoms(p^+, e^-, n), mols.,solids	
	Mon	T	-	Getting started on the modules	
	Thu	P	Prac 1	Laboratory Safety	
	Fri	L	Lect2.ppt 14	PTable, Inorganic naming.	Townsville
	Fri	L	Lect3.ppt 13	Stoichiometry I limiting reagents	

Week	**Module**	
1	1, 2	Introduction, Reaction stoichiometry and mass balances – conservation of mass. Naming of main group inorganic compounds

Week2

6/8	Mon	L	Lect4.ppt 14	Stoichiometry II titrations, solutions. Ppm
	Mon	T	Tutorial 1	Stoichiometry, inorganic naming - hand out at Lect 1
	Thu	P	Prac 2	Basic Volumetric Analysis (Calibrating pipette, titration)
	Fri	L	Lect5.ppt 15	Electron. struct., radii, IE, EA Periodic trend.
	Fri	L	Lect6.ppt 15	Bonding: Cov., EN, Ion, Met, Lewis, VSEPR

Week	**Module**	
2	3, 4	Solution stoichiometry. Atoms/ions, Atomic structure - Bohr's model. Bonds – Ionic, covalent, metallic., Molecular shapes, VSEPR model.

Week3

13/8	Mon	L	Lect7.ppt 15	Hydrogen bonding water, clays
	Mon	T	Tutorial 2	Soln. stoich., electronic structure, VSEPR, bonding - multichoice test – not part of assessment.
	Thu	P	Prac 3	Geometric Models - VSEPR
	Fri	L	Lect8.ppt 15	Functional groups, Alkanes, Alkenes/ynes.
	Fri	L	Lect9.ppt 14	Isomers, IUPAC naming,

Week	**Module**	
3	5	Hydrogen bonding + examples. Organic molecules functional groups, nomenclature and isomers

Week4

20/8	Mon	L	Lect10.ppt 14	Alcohols, amines,RCOX, RCOOH, Esters, Soaps
	Mon	T	Tutorial 3	Organic naming
	Thu	P	Prac 4	Functional Group Awareness - Chem3D
	Fri	L	Lect11.ppt 14	Proteins, Carbohydrates – monosaccharides, chirality
	Fri	L	Lect12.ppt 14	Carbohydrates, DNA

Week	**Module**	
4	6	Carbohydrates (monosacc, proj, disacch, polysacc). Proteins (1^o, 2^o, 3^o). Soaps Ideal gas law,

Physical Chemistry

Week5

27/8	Mon	L	Lect13.ppt 15	Gas Law, Ideal, Daltons, Grahams, diffn, Kin. Theory
	Mon	T	Workshop	organic naming, stoichiometry
	Thu	P	Prac 5	Redox Titrations
	Fri	L	Lect14.ppt 13	Colligative props
	Fri	L	Lect15.ppt 13	Rates, k, order, integrated rate laws, half lives

Week	**Module**	
5	7	Real gases, Intermolecular forces, diffusion ∝ mean free path, molecular size, diffusion. Colligative properties, f.p depression, osmometer p_{atm}, $>p_{atm}$, water potential, antifreeze.

Week6

3/9	Mon	L	Lect16.ppt 14	Mechanisms, Arrenhius, catalysis
	Mon	T	Tutorial 4	Organics, Gas Laws, Colligative Props.
	Thu	P	Prac 6	Caffeine extraction
	Fri	L	Lect17.ppt 13	Enzymatic catalysis, nitrogenase
	Fri	L	Lect18.ppt	*Review Weeks 1 - 6*

Week	**Module**	
6	8	Basic kinetics – first and second order reactions, chemically catalysed rxns. Haber process, 3-way converter. Enzymatic catalysis.

Week7

10/9	Mon	L	**Test 1**	(up to end of week 5 material)
	Mon	T	Lect19.ppt 14	Nuclear chemistry, Radiogenic dating Rb/Sr ^{14}C
	Thu	P	Prac 7	Kinetics
	Fri	L	Lect20.ppt 13	Stable isotopes $O^{18/16}$, $S^{34/32}$
	Fri	L	Lect21.ppt 14	Thermochemistry

Week	**Module**	
7	9, 10	Nuclear decay processes, radioisotopes, stable isotopes, radiodating. Thermochemistry : enthalpy (exothermic, endothermic) and equilibrium.

Week8

17/9	Mon	L	Lect22.ppt 14	Enthalpies, Equilibrium, Le Chatelier's principle
	Mon	T	Tutorial 5	Kinetics, Nuclear chemistry
	Thu	P	Prac 8	Thermochemistry
	Fri	L	Lect23.ppt 14	$K_{s.p.,}$ Second law and Free Energy
	Fri	L	Lect24.ppt 14	Redox reactions, Electrodes, Cell diagrams

Week	**Module**	
8	11,12	Thermochemistry : Entropy, Free energy and spontaneous processes. redox vs metathesis

Semester Break (24/9 – 30/9)

Week9

1/10	Mon	L	Lect25.ppt 14	Electrochemical cells, SHE, E^0
	Mon	T	Tutorial 6	Thermochemistry, Equilibrium
	Thu	P	Prac 9	Electrochemical Cells
	Fri	L	Lect26.ppt 14	Nernst, pH.Electrodes, conc cells, Corrosion.
	Fri	L	Lect27.ppt 13	Membrane potentials, batteries

Week	**Module**	
9	13	Electrochemistry, Zn/Cu cell, SHE & pH Electrodes, Voltaic cells (battery)

Environmental Chemistry

Week10

8/10	Mon	L	Lect28.ppt 14	Environmental chem – gen. defns, C cycle,
	Mon	T	Tutorial 7	Electrochemistry
	Thu	P	Prac 10	Corrosion
	Fri	L	Lect29.ppt 11	Atmosphere structure, air comp^{n}, Henry's law
	Fri	L	Lect30.ppt 12	Ozone layer, form^{n}, CFCs, smog

Week	**Module**	
10	14	Applications of electrochemistry cell membrane potentials as examples. Corrosion. Chemistry of the environment.

Week11

15/10	Mon	L	Lect31.ppt 13	Bronstead-Lowry, Ka, pH – waters
	Mon	T	Workshop	Physchem sheet
	Thu	P	Prac 11	Water quality (COD,pH,hardness,Cl^-)
	Fri	L	Lect32.ppt 13	Weak acid calculations, amino acids, Buffers
	Fri	L	Lect33.ppt 15	Acid Rain

Week	**Module**	
11	15	pH and acid-base equilibrium, Atmospheric chemistry, ozone, NO_x,

Week12

22/10	Mon	L	Lect34.ppt 14	DO/COD/Hardness/Water treatment
	Mon	T	Tutorial 8	Atmosphere and pH calculations
	Thu	P	Prac 12	Water Hardness
	Fri	L	Tutorial 9	Weak acids, water
	Fri	L	Lect35.ppt	*Review of Weeks 7-12* quality

Week	**Module**	
12	16	Weak acid calcs, Buffers, Water quality, dissolved oxygen, COD, acid rain.

Week13

29/10	Mon	L	**Test 2**	(up to end of Week 11 weak acids)
	Mon	T	Revision	
	Thu	P	Tutorial exam	
	Fri	L	Extra Revision (?)	
	Fri	L	"	

Week	**Module**	
13	-	-