APPLIED CHEMISTRY

Areas of study

Analytical
Determination and detection of impurities, quality control, sampling environmental studies, method development

Biological
Chemistry of life, food-stuffs, molecular basis of biological processes

Catalysis
Homogenous and heterogenous systems including enzymes, principles and applications

Environmental
Chemistry of the environment, pollution, recycling, analysis and fate of chemicals in the biosphere

Industrial
Chemical engineering, geochemistry, minerals, rocks, composition, ore refining

Inorganic
Chemistry of the non-carbon elements, minerals, fertilisers

Materials
Characterisation, synthesis, analysis and structural studies of new materials

Medical
Therapeutic drug design, dosage, toxins radio pharmaceuticals

Occupational health and safety
Safe handling and management of chemicals in the workplace

Organic
Chemistry of carbon compounds, petrochemicals, natural products, pesticides, herbicides

Organometallic
Chemistry of compounds containing metal-carbon bands, metal carbonyls and nitrosyls

Physical
Relationships between chemical and physical properties, equilibria, kinetics, thermodynamics

Polymer
Reactions and properties of synthetic polymers, adhesives, rubber, foams, biological macromolecules

Radiochemistry
Radioisotopes, tracers, effects of radiation, radio pharmaceuticals

Solid state
Lattice defects, crystal structure, electronic structure of solids, semi-conductors, nanoparticles

Theoretical
Bonding and the electronic structure of materials, molecular modelling

Areas of employment

Agrochemicals
Fertilisers, pesticides, herbicides, plant growth, hormones

Commerce
Chemical sales, law, marketing, management, trade consulting, computing

Consultancy
Environmental, chemical problem solving, chemical management, occupational health and safety

Defence services
Aerospace, propellants, anti-foulants, lightweight materials, explosives, computers

Education
Teaching at secondary colleges, TAFE/Vet, universities, short courses

Energy
Utilities, gas supply, liquid fuels, energy sources, fuel cells, resources

Environment
Analytical monitoring, water treatment, pollution, site assessment and remediation, recycling, engineering aspects, conservation

Food
Quality control, microbiology, wine, oils, dairy, food processing and preservation

Household
Bleaches, soaps, polishers, cosmetics, toiletries, perfumes, water treatment chemicals

Industry
Detergents, chemicals, mining, metallurgy, cement, adhesives, paints, soaps, plastics, explosives, oil, coal, data processing, catalysts

Medical
Microbiology, pathology, toxicology analysis, drug design

Pharmaceuticals
Medicines, vitamins, drugs, antibiotics, sunscreens, insecticides

Polymer
Synthetic fibres, paints, packaging films, adhesives, moulding plastics

Public sector
Customs, Wool Board, textiles, Grain Council, health, forensic, patents, administration, environmental protection, AGAL

Research
CSIRO, medical institutes, collaborative centres, universities, industry

Transportation
Petroleum products, solar energy, fuel, rubber catalytic converters, lubricants

Further information
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