Course Title: CHEMISTRY IN OUR DAILY LIVES

Course Code: CHEM2402

Semester: I/II/Summer

Number of credits: 3 credits – no laboratory

Pre-requisites: CHEM1901/CHEM1902 or HOD permission

Course Description
The course will focus on the role of chemistry in necessities of daily life such as the chemistry of life, agriculture, food, housing, healthcare, clothing, transport and communications. In addition it will introduce various applications of chemistry in the area of arts, crime and law enforcement, consumer products, cosmetics, warfare, economics and politics.

Chemistry in the Kitchen:

Chemistry in the Laundry:

Chemistry in Cosmetics:
The skin and skin penetration drugs in cosmetics. Deodorants and antiperspirants. Sunlight on skin. Hair and hair products for bleaching, colouring, moisturizing. Lipstick, toothpaste and baby care products.

Chemistry in the Garden:
Food for plants, nutrient deficiencies in plants. Fertilizers, composting, pesticides and their toxicities. Insecticides, fungicides. Biological control of weeds and pests. Genetically modified plants.

Chemistry in the Swimming pool:
Chemistry of Garments:

Chemistry in the Medicine cabinet:
Types of drugs in the cabinet and their chemistry and toxicity evaluation. Aspirin and analgesics, sulfa drugs, tranquilizers. Antidepressants, antihistamines. Generics replacing brand- name drugs. Drugs for chemotherapy.

Chemistry of Energy:

Chemistry in the atmosphere:

Chemistry of Local Industries:
Chemistry of the alumina, sugar and food industries and their implications in the community. Petroleum cracking. Ethanol production. The cement industry.

Chemistry and sports:
Cold packs. Hydration fluids, sports drinks, design of suitable materials for clothing and shoes for athletes. Design of materials to be used in sports equipment e.g. football/tennis ball, poles for vaulting, tennis racquets and golf clubs, spikes. Performance testing methods. Blood lactate level testing. Anti-inflammatory drugs. Anabolic steroids. Drug testing at sporting events.

Chemistry of common appliances:
TV/computer screens, printer inks, photocopying machines, cell phones, batteries, clocks. Stainless steel. Corrosion resistant materials.

Chemistry at the crime scene:

Chemistry of minerals:
Limestone, ruby, sapphire, quartz, emeralds, diamond, topaz etc. Asbestos, talc.

Ethical issues in chemical research:
Chemical and nuclear weapons. Environmental issues. Integrity of scientific results, the welfare of research participants.
Investigating the “myths”
Public perceptions on issues such as “organic”, “natural” materials and foods. Bottled water compared to tap water. Mercury in dental amalgams. Cooking in microwave ovens. Validation of chemistry found on Wikipedia pages.

Teaching method/Approaches
The teaching of this 3 credit course will be carried out using the following format:

Formal lecture course: 24 hours
Problem based classes and tutorials: 16 hours
Total contact hours = 40

Assessment Procedures/Methods:
The course assessment will be broken into two components; a final examination worth 50% and a coursework component consisting of assignments worth 50%. (5 * 10%). The assignments will take the form of 5 written reports with an associated 5 minute Oral presentation.

One (1) two-hour written examination 50%
Five (5) written assignments and presentations 50%

Materials/Bibliography/Reading List:

Atkins, Peter: Atkins' Molecules, Cambridge University Press, 2nd Edition 2003,