

## Vision, Aims and Objectives of the Department of Chemistry, UWI, Mona

The Department of Chemistry aims to be the best provider of chemical education within the Caribbean region and to be a leader in research, publications and scholastic excellence. We are committed to providing a stimulating learning environment for our students, courses that are relevant and an experience that is world-class whether judged by local or international standards.

### History and General Overview

Founded in 1948, the Department of Chemistry has over 800 undergraduates and more than 50 postgraduates pursuing M.Sc. degrees and an additional 80 who are enrolled in M.Phil and Ph.D. programmes. We have over 20 members of faculty who are actively involved in teaching, research, and service to industry. They also assist in developing policies and standards relevant to science and technology and provide leadership in several areas of the education sector.

### Undergraduate Programmes and Courses

#### Chemistry Majors

The Chemistry Department offers **Bachelor of Science degrees** with **majors** in:

- i. General Chemistry
- ii. Food Chemistry
- iii. Applied Chemistry
- iv. Environmental Chemistry

A major in chemistry requires completion of a specific set of advanced courses. Together, these courses expose students to sufficient content, laboratory skills and academic training to prepare them to be confident workers in industry or to gain entry to degrees in medicine, engineering or law or other areas of interest. The number of courses in a Chemistry Major varies somewhat but it is usually 39-48 credits, that is, about 12 to 15 advanced courses.

Prior to taking advanced chemistry courses, a student must successfully complete two Introductory 6-credit chemistry courses and two Introductory 3-credit Mathematics courses. These courses prepare students for the complex information studied in the advanced courses and require CAPE Chemistry and Mathematics respectively, for entry.

#### Chemistry Minors

At UWI, students may complete a B.Sc. degree with either a single major or combine this with a minor. A minor usually consists of 4-6 advanced courses that are specialized and focused towards a specific set of skills.

The Department of Chemistry offers **minors** in:

- i. General Chemistry
- ii. Food Chemistry
- iii. Food processing
- iv. Industrial Chemistry
- v. Environmental Chemistry

A student may pursue a major in Life Sciences or Biochemistry, Biotechnology, Mathematics, Physics, Geology or others along with a minor in Chemistry. A minor in Chemistry may significantly enhance a major in other disciplines and make the holder of such a degree much more marketable and with greater technical skills and professional competences.



#### Special Chemistry Degrees

The Department of Chemistry offers B.Sc. degrees in:

- i. Chemistry with Education
- ii. Chemistry and Management
- iii. Special Chemistry

The Chemistry with Education degree involves a major in Chemistry along with a major in Education and is specially designed for persons with interest in teaching. The Chemistry and Management degree presents a major in Chemistry and a major in Management and is ideal for persons who are interested in managing a chemical or technical facility. A degree in Special Chemistry is awarded after extensive studies in Chemistry and requires 56 credits of advanced chemistry. It is ideal for persons interested in pursuing research or higher degrees in Chemistry.

#### Chemistry Courses

The Chemistry Department offers a wide range of very exciting courses. There are advanced courses in Physical, Organic and Inorganic Chemistry, all of which are supported by hands-on laboratory activities. The laboratories help to clarify the principles that are taught and illustrate how they can be applied for practical use. We also offer several Applied, Analytical, Industrial and Food Processing courses. Some of our advanced courses include:

- \* *Chemical Analysis*
- \* *Chemistry of Materials*
- \* *The Chemical Industries*
- \* *Chemical Processing Principles*
- \* *Water Treatment*
- \* *Food Chemistry*
- \* *Food Safety & Quality Assurance*
- \* *Food Processing Principles*
- \* *Organic Chemistry in Medicine & Agriculture*
- \* *Chemistry of Organic Natural Products*
- \* *Project Management for Science Industries*
- \* *Chemistry Undergraduate Research Project*

These courses are interesting. You will not be able to do them all but even if you only do a few, they will change your learning experience forever and will definitely unleash your interest in Chemistry.

Some of our courses are supported by field trips to industry, to high-tech analytical facilities and even to water treatment and power generation facilities. Our industrial chemistry students learn to operate pilot-scale industrial equipment and study the chemical engineering principles on which they are based. Similarly, our food chemistry students may learn how to make smoked chicken or a variety of canned foods, jams or preserves. Students taking our Undergraduate Research course may get to isolate new medicinal compounds or to make materials with very interesting properties.



**Advanced students engaged in interesting laboratory work**

## Entry Requirements

Applicants wishing to pursue a B.Sc. degree in Chemistry should possess 5 CSEC subjects (grades 1-3, including English Language and Mathematics) or their equivalent. At least TWO of these should be science subjects at the advanced level (i.e. both CAPE units 1 and 2 at grades 1-5) for the applicant to qualify to enter the full time 3-year degree programme. Entry to our programmes is extremely competitive and in any given year, CAPE passes at grades 4-5 may not afford direct entry to the full time 3-year B.Sc. programme. CAPE passes in BOTH Chemistry and Mathematics gives the best chance for admission. On entry, students usually pursue courses in Introductory Chemistry and Introductory Mathematics among others.

A teachers college diploma or an associate degree in Chemistry from selected institutions may also afford entry and may even permit exemptions from some courses.

Chemistry permits entry to a 4-year degree programme as well. Applicants must have passes in at least 5 CSEC subjects (grades 1-3, including English Language, Mathematics and Chemistry) or their equivalent. On entry, such students usually pursue courses in Preliminary Chemistry and Preliminary Mathematics among others.

It should be noted that a pass in 6-credits of Introductory level Mathematics is required for entry to Advanced Chemistry courses. Passes in both units of CAPE Mathematics (or equivalent) are required for admission to the Introductory Mathematics courses, or alternatively, a pass in Preliminary Mathematics at UWI.



Students doing experimental work in the Undergraduate Lab

## Higher Degrees

The Chemistry Department affords several opportunities to pursue higher degrees. A graduate with a B.Sc. Chemistry degree may move seamlessly into one of two MSc courses:

- \* **M.Sc.** Occupation and Environmental Health & Safety
- \* **M.Sc.** Food and Agro-Processing Technology

Graduates may also pursue research-based studies in areas such as Catalysis, Theoretical Chemistry, Natural Products Chemistry, Organic Synthesis, Food Chemistry, Bayer Process Chemistry, Materials Chemistry, Computational Chemistry or Chemical Education among others. These courses lead to **M.Phil** or **Ph.D.** degrees.



A lecturer conducting research on a Food Chemistry project

## Careers and Opportunities for Advancement

A degree in Chemistry prepares one for work in chemical analysis, forensics, water treatment, food technology, quality management, environmental management, industrial processing, chemical or pharmaceutical manufacturing or agriculture. A chemistry degree also opens up opportunities to enter medicine, engineering, energy management, academics and a host of other fields.

Studies in Chemistry will help you cultivate your analysis skills, develop your confidence (through our writing and speaking intensive courses) and your general professionalism and work ethic.

*Join us in Chemistry at UWI, Mona. Reach towards your goal and make your vision a reality.*

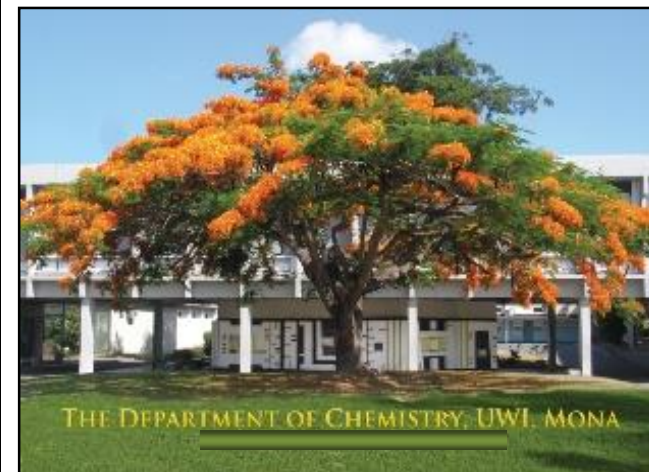


Advanced students learn process control on an industrial visit



# THE UNIVERSITY OF THE WEST INDIES, MONA

## DEPARTMENT OF CHEMISTRY



*Programmes, Courses and  
Opportunities for  
Higher Learning*

2014/15