



### CAREERS IN BIOCHEMISTRY & MICROBIOLOGY

Qualified chemists find themselves working at universities as Chemistry lecturers and at schools as Chemistry Teachers. Also they find jobs at different research companies as quality control chemists and industrial research chemists. Qualified chemists are also involved in the well-being of societies as food chemists, forensic chemists, environmental chemists. Other qualified chemists have exchanged laboratory coats for suits as sales representatives and patent agents



### CONTACT DETAILS

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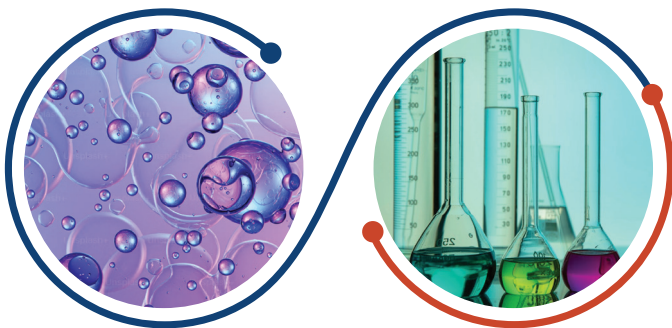
**University of Venda**

*Creating Future Leaders*



**FACULTY OF  
SCIENCE, ENGINEERING  
AND AGRICULTURE**

Department of Chemistry



## INTRODUCTION TO CHEMISTRY

Why does baking soda foam and bubble when vinegar is poured on it? What happens when dry ice vaporizes and makes a spooky fog for a scary movie? How can charcoal for the outside grill be made of carbon when diamonds are also made of carbon?

Chemistry answers these questions and many more by studying the substances that make up our world and universe. How substances react with each other, how they change, how certain forces connect molecules and how molecules are made, are all parts of chemistry.

## WHAT IS CHEMISTRY?

Chemistry is the science of the study of matter. Matter is anything that has mass and occupies space. Chemistry includes the study of substances, their structures, properties and reactions together with the energy changes of those reactions.

Chemistry is sometimes called the central science because its properties are important to biologists, physicists, geologists and astronomers alike. Chemistry is present throughout modern society in medicine, manufacturing and agriculture.



## ENTRY REQUIREMENTS

Applicants wishing to pursue B.Sc. degree in chemistry must have obtained a minimum admission requirement in a National Senior Certificate (NSC) as certified by the Council for General and Further Education and Training (UMALUSI) with an achievement rating of 4 (adequate achievement, 50-59%) or better in each of the following four recognized 20-credit NSC subjects: English, Mathematics, Physical Sciences and Life Sciences.

## UNDERGRADUATE PROGRAMME AND MODULES

To major in chemistry a student must register for the following modules:

**First year class:**  
CHE 1140, CHE 1221 and CHE 1222

**Second year class:**  
CHE 2121, CHE 2122, CHE 2220 and CHE 2223

**Third year class:** CHE 3120, CHE 3123, CHE 3221 and CHE 3222

To major in applied chemistry a student must register the above mentioned modules for main stream chemistry and the following modules:

Second year class: CHE 2124, CHE 2125, CHE 2226 and CHE 2229

Third year class: CHE 3124, CHE 3125, CHE 3226 and CHE 3227

## POSTGRADUATE STUDIES

The department of chemistry offers both MSc and PhD degrees across all the four major chemistry sections; namely organic chemistry, analytical chemistry, inorganic chemistry and physical chemistry.

Research in organic chemistry (including medicinal chemistry and natural products chemistry) include total synthesis of drugs and isolation of active compounds from plants and testing their activities against diseases like diabetes, malaria, tuberculosis and others.

Research in physical chemistry ranges from synthesis of molecules and testing their activity as anticorrosive agents. Computational chemistry section includes study of biologically active molecules and the design of super molecular structures. Research in inorganic chemistry comprises of the development of improved inorganic materials for lithium-ion and next generation batteries. Also there is a focus on the synthesis of metal frameworks.

Research in analytical chemistry ranges from water research projects and design and synthesis of molecularly imprinted polymers

