

Undergraduate Studies

Life and Physical Sciences



UNIVERSITI TUNKU ABDUL RAHMAN
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Biochemistry
Biotechnology
Chemistry
Microbiology
Physics

Bachelor of Science (Honours) Biochemistry

(R2/421/6/0023)03/25(A6170)

Overview

Biochemistry has grown as techniques for its study become more sophisticated, with applications in genetic engineering and molecular bioengineering as well as in the physiological and medical areas.

This programme is developed in response to the continuous and increasing demand for bioscience-based courses, both locally and internationally. It provides students with the aptitude to investigate a diverse range of problems in animals, plants and micro-organisms, encompassing each level of the biological organisation. The study of scientific theory is supplemented with practical sessions (experiments and laboratory projects) in order to better understand the chemistry of living things.

The topics of molecular biology, biotechnology and genetic engineering are derived from biochemistry and the subject interacts with a wide range of other biology-related disciplines. Biochemistry is also the core subject in bioinformatics which links the biological sciences to computer technology.

Bachelor of Science (Honours) Biotechnology

(R2/545/6/0082)09/23(A9423)

Overview

Biotechnology is the application of advances made in the biological sciences, especially involving the science of genetics and its application. Biotechnology has helped improve food quality, quantity and processing; its application also include producing chemicals through manipulating simple cells and proteins. Biotechnology also has important implications in health and medicine. Through genetic engineering, scientists have been able to create new medicines, including interferon for cancer patients, synthetic human growth hormone and synthetic insulin, among others.

This programme aims to produce graduates with a high level of competency in the field of biotechnology to meet the market demand and national expectation.

Through the final-year project, students will acquire specialised skills within selected areas of biotechnology such as proteomics, genomics, enzyme and protein biotechnology, protein engineering, immunology, fermentation technology, plant biotechnology, biosensor, phytomedicine and phytochemistry, cell and tissue culture, and bioinformatics.

Bachelor of Science (Honours) Chemistry

(R2/442/6/0006)03/24(A9661)

Overview

Chemistry is the study of the properties, the composition and structure of matter, the transformation of substances, and their corresponding energy changes. As a basic knowledge, chemistry is essential for students of biology, physics, geology, engineering, biotechnology and many other subjects. Chemistry has widely been recognised as central science because of its role in connecting the physical science with life and applied sciences.

This programme is designed to increase students' theoretical knowledge and application of chemistry, and to help them in developing various practical skills through experimental and instrumental techniques. It covers the traditional sub-disciplines of organic, inorganic, physical and analytical chemistry, as well as biochemistry. More modern interdisciplinary topics such as environmental chemistry and medicinal chemistry are also studied.

Career prospects

- Biochemist
- Bioinformatics Software Developer
- Food Analyst
- Laboratory Executive/Manager
- Phylogeneticist
- Protein Chemist
- Scientific Officer



Duration of study: 3 years

Medium of instruction: English

Campus: Kampar

Career prospects

- Biotechnologist
- Field Application Specialist
- Laboratory Executive/Manager
- Pharmaceutical Scientist
- Technical Product Specialist



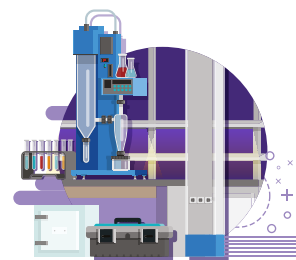
Duration of study: 3 years

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Career prospects

- Biotechnologist
- Field Application Specialist
- Laboratory Executive/Manager
- Pharmaceutical Scientist
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Duration of study: 3 years

Medium of instruction: English

Campus: Kampar

Professional Recognised by



Bachelor of Science (Honours) Microbiology

(R2/421/6/0020)01/25(A10758)

Overview

Microbiology is the study of microorganisms that include bacteria, viruses, algae, and fungi. Microorganisms are being studied because some of them have the ability to cause diseases, whereas others are vital to agriculture, industry, environment and ecology.

This programme is designed to provide students with basic knowledge on various microorganisms, as well as the aspects related to other academic branches, such as physiology, immunology, biochemistry, genetics, molecular biology, and medicine. The students will gain knowledge in the basic sciences which are essential to microbiology and the application of science to various issues in the modern world.

The students will learn how microbial genes, proteins, and processes are being exploited to help cure and prevent diseases, generate alternative fuels, produce new antibiotics, degrade pollutants, treat waste-waters, clean up oil spills, recover valuable metals from ores, fix nitrogen, and produce food additives, enzymes, and vitamins for the industry.

Their competencies in analysis, research, writing, and oral presentation skills will be developed, enabling them to compete confidently and effectively for career opportunities available. The lifelong learning skills provided by the programme enable the students to critically, objectively and analytically address complex problems or issues so as to work independently and manage time effectively.

Career prospects

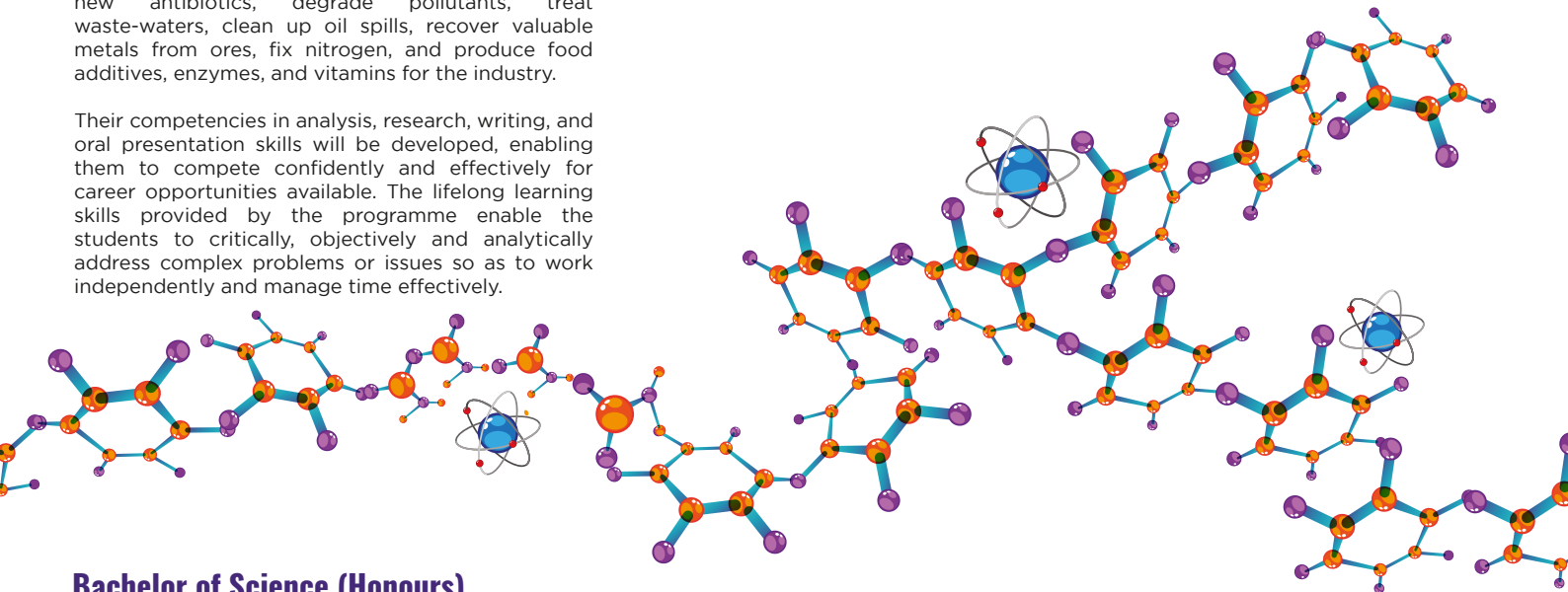
- Academician
- Environment Manager
- Food Producer
- Healthcare Personnel
- Medical and Forensic Scientist
- Quality Controller
- Water Treatment Plant Designer



Duration of study: 3 years

Medium of instruction: English

Campus: Kampar



Bachelor of Science (Honours) Physics

(R2/441/6/0001)05/21(A7015)

Overview

Physics is a fundamental science that provides a basis for our understanding of the physical world. Whether it is an electron, X-rays or a star, there is an area of study in physics that explains it. Hence, the applications of physics are wide-ranging from electronics, medical science to space research.

This programme is designed to equip students with theoretical and practical knowledge in both the fundamentals of physics as well as its applications in modern technologies. Students will learn to understand and appreciate physics through a hands-on approach in a laboratory setting with state-of-the-art equipment. Besides academic development, this programme also aims to equip students with the proper communication and entrepreneurial skills. Physics is a subject that develops analytical and problem-solving skills, and the ability to handle large amounts of complex information, all of which are essential for career advancement.

Career prospects

- Academician
- Consumer Goods Producer
- Fiber Optic and Telecommunication
- Lecturer
- Microelectronic Designer
- Optical Instrument Designer
- Personnel
- Researcher
- Scientist



Duration of study: 3 years

Medium of instruction: English

Campus: Sungai Long

For more information, please contact

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