

# BACHELOR OF ENVIRONMENTAL HEALTH

(Qualification type: Professional Bachelor's Degree)

Qualification code: BPEH01 - NQF Level 8 (499 credits)

SAQA ID: 93858, CHE NUMBER: H/H16/E018CAN

Campus where offered: Pretoria Campus

## REMARKS

a. *Admission requirement(s) and selection criteria:*

Acceptance is subject to available capacity according to the Student Enrolment Plan (SEP). Once a programme is full, a waiting list will be in place to provide an opportunity for applicants to fill places of those who did not register on time. Applicants will be informed of their status per official letter from the Office of the Registrar, alternatively, they can check their application status on the TUT website, [www.tut.ac.za](http://www.tut.ac.za).

• **APPLICANTS WITH A SENIOR CERTIFICATE OBTAINED BEFORE 2008:**

**Admission requirement(s):**

A Senior Certificate or an equivalent qualification, with a D symbol at Higher Grade for English, Biology, Mathematics and Physical Science.

**Recommended subject(s):**

Geography and Agricultural Science.

**Selection criteria:**

Selection is done in accordance with the Health Professional Council of South Africa (HPCSA). Students are assessed by means of a formula for academic merit, based on scholastic performance. The formula for academic merit is as follows:

SYMBOL	HG
A	5
B	4
C	3
D	2

- The subjects Biology, English, Mathematics and Physical Science will be used to assess the application.
- One (1) additional point will be added if the applicant has passed Agricultural Science and/or Geography.
- Applicants who score eight (8) or more points according to the formula for academic merit will be accepted.

• **APPLICANTS WITH A NATIONAL SENIOR CERTIFICATE OBTAINED IN OR AFTER 2008:**

**Admission requirement(s):**

A National Senior Certificate with a bachelor's degree endorsement (four subjects with a minimum score of 4 in each) or equivalent recognised qualification, with an achievement level of at least 4 for English (home language or first additional language), 4 for Mathematics or Technical Mathematics, 4 for Physical Sciences or Technical Sciences, 4 for Life Sciences and 4 for two other subjects (excluding Life Orientation).

**Recommended subject(s):**

None.

**Selection criteria:**

To be considered for this qualification, applicants must have an Admission Point Score (APS) of at least **24** (excluding Life Orientation).



**Assessment procedures:**

No further assessments will be done. Applicants who receive the minimum APS will be considered for placement subject to availability of space.

- **APPLICANTS WITH A NATIONAL CERTIFICATE (VOCATIONAL):**

**Admission requirement(s):**

A National Certificate (Vocational) at NQF Level 4 with a bachelor's degree endorsement issued by the Council for Quality Assurance in General and Further Education and Training (Umalusi), with at least 50% (APS of 4) for English, Mathematics, Physical Sciences and Life Sciences and any two other additional vocational subjects. A candidate may have a score of less than 4 for each of the additional subjects provided that the final APS is at least 24.

**Selection criteria:**

To be considered for this qualification, applicants must have an Admission Point Score (APS) of at least **24** (excluding Life Orientation).

- b. *Recognition of Prior Learning (RPL), equivalence and status:*  
See Chapter 30 of Students' Rules and Regulations.
- c. *Intake for the qualification:*  
January only.
- d. *Presentation:*  
Day classes. This programme consists of formal tuition and Work-Integrated Learning.
- e. *Minimum duration:*  
Four years.
- f. *Exclusion and readmission:*  
See Chapter 2 of Students' Rules and Regulations.
- g. *Professional registration*  
Compulsory, once-off, students have to register in the first year with the Health Professions Council of South Africa (HPCSA). HPCSA requires students to complete community service for a period of one year on successful completion of this qualification.
- h. *Special rules and regulations:*  
Unless otherwise stipulated, special rules and regulations, as published in the programme guide, apply to students who register for this qualification. Students should familiarise themselves with those rules and regulations. Students will handle carcasses, body parts, entrails and fluids of slaughtered animals referred to in the Meat Safety Act, 2000 (Act No. 40 of 2000) and its regulations during abattoir and laboratory practical. Students undergo work-integrated learning and take study tours. They have to purchase protective clothing for the module, Food and Meat Hygiene.

## CURRICULUM

### FIRST YEAR

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
AAP105P	Anatomy and Physiology I	(5)	(17)	
CHE105P	Chemistry I	(5)	(15)	
IEV105P	Introduction to Environmental Health I	(5)	(20)	
MIB105P	Microbiology I	(5)	(15)	
PHY105P	Physics I	(5)	(20)	
SOC105P	Sociology I	(5)	(17)	



**FIRST SEMESTER**

CAP115P	Communication for Academic Purposes I	(5)	(8)	
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**SECOND SEMESTER**

ITC125P	Computer Literacy I	(5)	(8)	
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TOTAL CREDITS FOR THE FIRST YEAR: **120**

**SECOND YEAR**

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
CDV206P	Community Development II	(6)	(15)	Sociology I
EPL206P	Environmental Pollution: Waste, Water and Air II	(6)	(15)	Anatomy and Physiology I
FMH206P	Food and Meat Hygiene II	(6)	(21)	Microbiology I
IDE206P	Infectious Disease Epidemiology II	(6)	(18)	Microbiology I
OHS206P	Occupational Health and Safety (Physical) II	(6)	(20)	Anatomy and Physiology I Physics I
PBE206P	Planning for Built Environment II	(6)	(15)	Introduction to Environmental Health I

**FIRST SEMESTER**

COP216P	Communication for Occupational Purposes II	(6)	(8)	
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**SECOND SEMESTER**

REM126P	Research Methodology I	(6)	(10)	Introduction to Environmental Health I
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TOTAL CREDITS FOR THE SECOND YEAR: **122**

**THIRD YEAR**

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
EEM307P	Environmental Epidemiology III	(7)	(17)	Infectious Disease Epidemiology II
EHM307P	Environmental Health Management and Administration III	(7)	(20)	Community Development II
FPS307P	Food Processing and Safety III	(7)	(22)	Food and Meat Hygiene II
OHS307P	Occupational Health and Safety (Chemical and Biological) III	(7)	(22)	Occupational Health and Safety (Physical) II
RMB207P	Research Methodology and Biostatistics II	(7)	(14)	Research Methodology I
WQW307P	Water Quality and Wastewater Management III	(7)	(15)	Environmental Pollution: Waste, Water and Air II

TOTAL CREDITS FOR THE THIRD YEAR: **110**

**FOURTH YEAR**

CODE	MODULE	NQF-L	CREDIT	PREREQUISITE MODULE(S)
AQM408P	Air Quality Management IV	(8)	(15)	
DMA408P	Disaster Management IV	(8)	(16)	
FSM408P	Food Safety Management IV	(8)	(15)	Food Processing and Safety III

MAP408P	Management Practice IV	(8)	(15)	Environmental Health Management and Administration III
OHS408P	Occupational Health and Safety Management IV	(8)	(20)	Occupational Health and Safety (Chemical and Biological) III
WMA408P	Waste Management IV	(8)	(21)	Water Quality and Waste Water Management III

#### FIRST SEMESTER

REP408P	Research Project IV	(8)	(25)	Research Methodology and Biostatistics II
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#### SECOND SEMESTER

EMA428P	Environmental Management IV	(8)	(20)	
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TOTAL CREDITS FOR THE FOURTH YEAR: **147**

TOTAL CREDITS FOR THE QUALIFICATION: **499**

### MODULE INFORMATION (OVERVIEW OF SYLLABUS)

The syllabus content is subject to change to accommodate industry changes. Please note that a more detailed syllabus is available at the Department or in the study guide that is applicable to a particular module. At time of publication, the syllabus content was defined as follows:

#### A

#### **AIR QUALITY MANAGEMENT IV (AQM408P) 1 X 3-HOUR PAPER**

*(Module custodian: Department of Environmental Health)*

Air pollution sources and related emissions of the respective priority industrial processes; respective available options to control air pollution; air pollution measurement equipment/ techniques and apply the respective sampling techniques; global warming consequences, strategies and mitigation measures; measurement, interpretation and prescribing of controls and reporting on environmental noise impacts; environmental radiation sources and health effects of radiation and radioactivity. (Total tuition time: ± 200 hours)

#### **ANATOMY AND PHYSIOLOGY I (AAP105P) 1 X 3-HOUR PAPER**

*(Module custodian: Department of Biomedical Sciences)*

Overview of anatomy and physiology; organisation of human body; cytology; histology; systems of the body; biochemistry. (Total tuition time: ± 170 hours)

#### C

#### **CHEMISTRY I (CHE105P) 1 X 3-HOUR PAPER**

*(Module custodian: Department of Chemistry)*

Matter; Atoms, molecules, and ions; Basic concepts in chemical bonding; Chemical reactions and stoichiometry; Reactions in aqueous solutions; Acids and bases; Chemistry of the environment; Introductory organic chemistry. (Total tuition time: ± 150 hours)

#### **COMMUNICATION FOR ACADEMIC PURPOSES I (CAP115P) 1 X 2-HOUR PAPER**

*(Module custodian: Department of Applied Languages)*

Reading skills. Listening skills. Writing skills. Presentation skills. Research report, citation and referencing. (Total tuition time: ± 80 hours)

#### **COMMUNICATION FOR OCCUPATIONAL PURPOSES II (COP216P) 1 X 2-HOUR PAPER**

*(Module custodian: Department of Applied Languages)*

Communication theory; organisational communication; small group communication; employment; internal business documentation; external business documentation; meeting procedure; marketing; stress management/self-management and human relations; multicultural interaction; career-specific vocabulary. (Total tuition time: ± 80 hours)



**COMMUNITY DEVELOPMENT II (CDV206P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Development and underdevelopment. Millennium development goals. Entrepreneurship. Qualitative and quantitative techniques of community profiling. Statistics for decision-making in communities. Environmental health interventions and advocacy. (Total tuition time: ± 150 hours)

**COMPUTER LITERACY I (ITC125P)****1 X 3-HOUR PAPER****(Module custodian: ICT First Years' and Foundation Unit)**

Introduction to Computers. Use of internet. Operating Systems. Microsoft Word. Microsoft Excel. Microsoft PowerPoint. (Total tuition time: ± 80 hours)

**D****DISASTER MANAGEMENT IV (DMA408P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

The nature of emergencies and disasters; pre-disaster activities; emergency response; recovery and sustainable development; shelter and emergency settlements; water supply; sanitation; food safety; vector and pest control; control of communicable diseases and prevention of epidemics; chemical incidents; radiation emergencies; mortuary service and handling of the dead; health promotion and community participation; human resources. (Total tuition time: ± 160 hours)

**E****ENVIRONMENTAL EPIDEMIOLOGY III (EEM307P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Causation and causal inference in epidemiology; measures of risk / health measurement; epidemiological study designs; summarising and displaying public health data (epidemiological data presentation, analysis, and interpretation); ethics in epidemiology; environmental epidemiology; occupational epidemiology; toxicology and epidemiology; social epidemiology; public health surveillance; epidemiology, health policy and planning; disposal of the dead; non - communicable disease. (Total tuition time: ± 170 hours)

**ENVIRONMENTAL HEALTH MANAGEMENT AND ADMINISTRATION III (EHM307P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Introduction to health policy formulation in South Africa; managerial legislation at national, provincial and local government levels; the health system plan of South Africa; stakeholders in the health sector; administrative processes of public administration in practices; office practice management in the workplace; scientific report writing skills in the workplace; project management in the workplace. (Total tuition time: ± 200 hours)

**ENVIRONMENTAL MANAGEMENT IV (EMA428P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Elements of environmental management. National Environmental Management Act, 1998 (Act No. 107 of 1998). Types of environmental resources. Environmental assessment processes including environmental health impact assessments. Environmental evaluation techniques. Environmental management system (ISO 14001: 2004). (Total tuition time: ± 200 hours)

**ENVIRONMENTAL POLLUTION: WASTE WATER AND AIR II (EPL206P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Definition of waste and its classification; waste generation and composition; waste storage, collection, transportation and disposal; waste reduction and separation; toxic waste, treatment and disposal; management of health care risk waste (infectious waste); water cycle and water sources identification/ mapping; water treatment; different uses of water and institutional responsibilities; sources of pollution, management of wastewater and its impact to health and environment; mining and health; types of sanitation systems used in emergencies, rural and urban communities; water, waste and law; monitoring sanitation and water sources; principles of combustion; atmospheric chemical and physical processes in the atmosphere. (Total tuition time: ± 150 hours)



**F****FOOD AND MEAT HYGIENE II (FMH206P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Introduction to food and meat hygiene; food premises design and layout; good hygiene and manufacturing practices; abattoir design and slaughter of animals; slaughter animal anatomy and physiology; meat inspection. Food premises include formal and informal small, medium and large food establishments/premises e.g. restaurants, food factories, premises used for school feeding schemes, prisons, airports, health establishments; support services e.g., distribution (transport) and storage. (Total tuition time: ± 210 hours)

**FOOD PROCESSING AND SAFETY III (FPS307P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Food security and Nutrition. Quality factors of food and changes in food. Food-borne illnesses and outbreak investigation. Preparation/processing and preservation of food. Assessment of food for suitability, for human consumption. (Total tuition time: ± 220 hours)

**FOOD SAFETY MANAGEMENT IV (FSM408P)****CONTINUOUS ASSESSMENT****(Module custodian: Department of Environmental Health)**

Requirements of a Food Safety Management System (FSMS); documentation of a Food Safety Management System (FSMS); identification of food safety hazards and hazard analysis; auditing techniques and auditing of food safety management systems; reporting on the outcomes of auditing Food Safety Management Systems. (Total tuition time: ± 150 hours)

**I****INFECTIOUS DISEASE EPIDEMIOLOGY II (IDE206P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Health service delivery in South Africa; foundation of epidemiology; disease observation; prevention and control of communicable disease; disease surveillance and outbreak investigation; expanded immunisation programme in South Africa; parasite and pest vectors (arthropoda, insecta, arachnida); Introduction to communicable diseases and legislation; communicable diseases (viral, bacterial, sexually transmitted, chlamydia, fungal, protozoal); Port Health Services and Global Health. (Total tuition time: ± 180 hours)

**INTRODUCTION TO ENVIRONMENTAL HEALTH I (IEV105P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

History of environmental health; sustainable development concept and its application; ethics and professionalism; scientific writing. (Total tuition time: ± 200 hours)

**M****MANAGEMENT PRACTICE IV (MAP408P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Key aspects of criminal law, investigation and procedure in an environmental compliance and enforcement context; principles and guide lines of change management, conflict management and diversity management; environmental health information system; financial and personnel management; the district health system; principles of entrepreneurship. (Total tuition time: ± 150 hours)

**MICROBIOLOGY I (MIB105P)****1 X 3-HOUR PAPER****(Module custodian: Department of Biotechnology and Food Technology)**

General microbiology (microbial structure and function, nutrition, growth and control); overview of eukaryotic micro-organisms and viruses; basic microbial taxonomy and main groups of microorganisms; interaction of micro-organisms with their environment (air, soil, water, human beings, other microorganisms); introduction to public health microbiology and epidemiology; food microbiology. (Total tuition time: ± 150 hours)



**O****OCCUPATIONAL HEALTH AND SAFETY (CHEMICAL AND BIOLOGICAL) III (OHS307P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

The occupational hygiene process; occupational toxicology; epidemiological aspects and occupational health; hazardous chemical substances in the work place; processes and hazardous chemical substances in the work place; occupational exposure limits; occupational medicine; indoor air quality; health risk assessments; measurement of hazardous chemical substances in the work place; quality aspects of occupational hygiene; occupational hygiene report writing; ethical and professional considerations; relevant legislation and standards as well as biological agents. (Total tuition time: ± 220 hours)

**OCCUPATIONAL HEALTH AND SAFETY (PHYSICAL) II (OHS206P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Occupational safety; approved inspection authorities (AIA) for occupational hygiene services; history of health/hygiene; stress factors in the occupational environment; the occupational hygiene process; work place ergonomics; ionising and non-ionising radiation; abnormal pressure; psychological work factors; occupational noise and vibration; thermal factors in the work place; illumination; relevant legislation, codes and standards. (Total tuition time: ± 200 hours)

**OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT IV (OHS408P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

The occupational hygiene process; health risk assessment; occupational health and safety services and activities; ethics, professionalism, quality; medical surveillance; health risk assessment; occupational hygiene monitoring; occupational health control principles; hierarchy of control; development and testing of control systems; occupational health and safety programmes; occupational health management principles; epidemiological aspect and occupational diseases; AIA facilities; health promotion at work relevant legislation and standards. (Total tuition time: ± 200 hours)

**P****PHYSICS I (PHY105P)****1 X 3-HOUR PAPER****(Module custodian: Department of Physics)**

Introduction to physics; basic mathematics for physics; measurements; motion in one dimension; forces and Newton's laws of motion; work and energy; impulse and momentum; rotational dynamics; fluids; temperature, heat and heat transfer; ideal gas law and kinetic theory; waves and sound; optics; electricity; nuclear physics and radioactivity. (Total tuition time: ± 200 hours)

**PLANNING FOR BUILT ENVIRONMENT II (PBE206P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Town planning (aim of city planning, origin of towns and cities, limitations of town planning, the land-use question, the problems that manifest in the city environment, the intra-urban structure, ecological land-use planning, internal structure of the city; housing (concepts of housing and a house, inherent socio-economic challenges, general housing principles in terms of world health organisation, consideration of residential planning, role of ethics in housing development; building science (design of buildings, building plans, building styles, types of finishes of materials, building construction and building materials, foundations, national building regulations act); the role of environmental health practitioners and authorities in town planning, housing and building science. (Total tuition time: ± 150 hours)

**R****RESEARCH METHODOLOGY AND BIostatISTICS II (RMB207P)****CONTINUOUS ASSESSMENT****(Module custodian: Department of Environmental Health)**

Identification of research topic and preparation of pre-proposal; preparation of full proposal; statistical methods (biostatistics, variables, population and sampling, data collection methods, validity, reliability and trustworthiness, data management, analysing and interpreting data; use of statistical software programs e.g. SPSS, Epi-Info. (Total tuition time: ± 140 hours)



**RESEARCH METHODOLOGY I (REM126P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Introduction to the scientific research; reasons for research related to environmental health and health services; types of research (basic, applied, quantitative, qualitative, combination of previous); research methods (experimental/intervention, observational/surveys, exploratory, overt and covert); research tools (library, computers, measuring techniques, statistics, language, human mind); methods of identifying research needs and the criteria for selecting research topics; research ethics, human rights and community participation; steps in a research process - identification of research needs (topics), planning, execution and reporting (research report, articles, posters, presentations); conducting of a literature review and the use of citation and referencing tools e.g., Endnote. (Total tuition time: ± 100 hours)

**RESEARCH PROJECT IV (REP408P)****CONTINUOUS ASSESSMENT****(Module custodian: Department of Environmental Health)**

Finalisation of the research topic and full proposal developed in the previous module (including research tools and ethics approval); execution of research (including literature review) within the parameters of a prepared proposal; writing of research report (prescribed format); writing of a research article based on the requirements of a related scientific journal; preparation of posters for presentation at conferences/seminars/congresses; preparation and presentation of Power Point presentations to conferences/seminars/congresses. (Total tuition time: ± 100 hours)

**S****SOCIOLOGY I (SOC105P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Introduction to sociological concepts. Ethnocentrism and group dynamics. Communication skills. Human development and social psychology. Public participation and consultation processes. (Total tuition time: ± 170 hours)

**W****WASTE MANAGEMENT IV (WMA408P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

History of solid waste management; South African waste profile; environmental impact of waste; legislation, conventions and international management; classification, analysis and sampling of waste; hierarchy of waste; waste collection and transportation; waste transfer and disposal; role of government and private institutions; resource recovery and waste processing such as re-use, recycling, reduces and composting; waste information systems; waste management plans; hazardous waste management, health care risk waste management, disposal for the diseased animal and the dead; monitoring and analysis of waste generation, storage, collection, storage and disposal in various institutions and sectors; economic impact, business model and marketing on solid waste management in private and public sector. (Total tuition time: ± 210 hours)

**WATER QUALITY AND WASTEWATER MANAGEMENT III (WQW307P)****1 X 3-HOUR PAPER****(Module custodian: Department of Environmental Health)**

Principles of water quality management; sources of water supply, gender mainstreaming and protection; water quality control, standards and legislation; water sampling and examination; water safety plans such as blue drop and green drop strategies (waste water); industrial waste water pollution and management; sanitation technologies and gender mainstreaming; water resource and hygiene management; prevention and control of water related diseases using participatory education strategies; sanitary and water inspections in community facilities, ports and harbours. (Total tuition time: ± 250 hours)

