



**MASTERS IN PHILOSOPHY – OCCUPATIONAL HEALTH  
(MPhil – Occ. Health)**

**TRAINING PROGRAMME AT THE UNIVERSITY OF CAPE TOWN**

**CONVENOR: PROF MOHAMED JEEBHAY,  
*MBChB DOH MPhil (Epi) MPH (Occ Med) PhD FCPHM (Occ Med)***

**ASSISTANT CONVENOR: DR ROSLYNN BAATJIES,  
*MTech (Environmental Health), MPH (Occupational Hygiene), PhD***

**PROGRAMME ADMINISTRATOR: LYNNE HARPER**

**OCCUPATIONAL MEDICINE DIVISION**

**SCHOOL OF PUBLIC HEALTH**

**- NOVEMBER 2023 -**

# OVERVIEW OF THE TRAINING PROGRAMME

## ADMISSION REQUIREMENTS

A candidate shall not be admitted to the programme unless he/she: (a) holds an MBChB degree, an honours degree, a four-year bachelor's degree, or a relevant NQF 8 qualification in an approved discipline; and (b) has access to relevant places of work and/or experience in occupational health clinical practice, occupational hygiene, health and safety, management, inspection, or auditing.

## STRUCTURE AND DURATION OF PROGRAMME

A candidate shall be registered for at least two years of part-time study and is required to complete three courses of the Postgraduate Diploma in Occupational Health (DOH) programme (occupational health risk assessment and management; occupational medicine and work ability; and occupational health services management, ethics and legislation) and complete required coursework in Epidemiology and Biostatistics for Occupational Health, and Research Methods for Occupational Health over the two-year period. You will be assigned a research supervisor to advise you throughout the research process until the submission of your dissertation. Students are advised to be in regular (monthly) contact with their supervisor to ensure that they are progressing through all components of the research process including the literature search, protocol development and dissertation write-up.

## COURSE OUTLINE

Code	Course	NQF Credits	HEQSF Level
PPH4072F	Occupational health risk assessment and management	20	8
PPH4071S	Occupational medicine and work ability	20	8
PPH4070F	Occupational health services management, ethics and legislation	20	8
PPH7103F/S	Epidemiology and Biostatistics for Occupational Health	30	9
PPH7104F/S	Research Methods for Occupational Health	30	9
PPH7060W	Occupational Health Minor Dissertation	60	9
	<b>Total NQF credits</b>	<b>180</b>	

\*Please refer to the Postgraduate Diploma in Occupational Health Programme document on the website: [http://www.publichealth.uct.ac.za/phfm\\_postgraduate-diploma-occupational-health](http://www.publichealth.uct.ac.za/phfm_postgraduate-diploma-occupational-health)

Students who have previously completed the Postgraduate Diploma in Occupational Health will be exempted from the following 3 courses:

- PPH4072F Occupational Health risk assessment and management
- PPH4071S Occupational medicine and work ability
- PPH4070F Occupational health services management, ethics and legislation

## **COURSE DETAILS**

### **I. Epidemiology and Biostatistics for Occupational Health (PPH7103F/S)**

The course aims to introduce the principles and methods of epidemiology and biostatistics and its application to occupational health, and to develop proficiency in occupational epidemiological analytic methods using statistical software.

The course covers all the key principles and the application of key concepts in occupational epidemiology and biostatistics in order to conduct epidemiologic and exposure assessment studies.

At the end of the course candidates should be able to demonstrate knowledge of:

- The nature and uses of epidemiology in occupational health
- The strengths and limitations of epidemiological study designs in occupational contexts
- The epidemiological approach to defining and measuring exposures and the occurrence of health-related states in the working population
- The epidemiological approach to assessing study validity and disease causation in the occupational context
- Causation, measures of occurrence and measures of association
- A deeper understanding of confounding and how confounding is controlled for in epidemiological research, and the uses and limitations of matching in analytical studies
- The ability to integrate and apply different epidemiological concepts to provide a thorough critique of study design, conduct and analysis of occupational studies

Furthermore, candidates will develop a specialist understanding and application of occupational epidemiological approaches using appropriate statistical software.

- Descriptive statistics
- Inferential statistical procedures including modelling
- Critical interpretation of statistical output

#### ***Course Syllabus:***

##### **a) Epidemiology component:**

- Types of study designs
- Random error, bias and confounding
- Overview of study design and epidemiologic principles
- Measures of disease occurrence and disease association
- Approaches to the assessment of causality
- Bias and validity
- Confounding
- Effect measure modification
- Exposure assessment in occupational epidemiology
- Case studies in occupational epidemiology

**b) Biostatistics component:**

- Populations and samples, and sampling methods
- Descriptive measures and graphical techniques
- Distributions
- Estimation: Point and Interval estimation
- Hypothesis testing
- Power, Effect, and Sample size
- Measures of effect – risk ratio and odds ratio
- Multiple linear regression for modelling and identifying the relationship between a continuous response and a set of risk factors
- Logistic regression for modelling and analysing the relationship between a dichotomous indicator of disease status and a set of risk factors

**II. Research Methods for Occupational Health (PPH7104F/S)**

The course is aimed at candidates who wish to develop a broad understanding of quantitative research methods and its application in occupational health research in a career that requires skills in collecting, understanding, synthesising and reporting of epidemiological data or other quantitative data sources.

Upon completion of this course, students will demonstrate the following competencies:

- Identifying a work-related health problem, formulating a study hypothesis, developing research objectives and formulating an appropriate study design
- Producing an evidence-based literature review
- Developing a protocol that includes the method for doing the research project with due consideration to the ethical issues that may arise
- Developing a questionnaire or appropriate data collection instrument to collect meaningful data
- How to collect and accurately analyse data using statistical software
- How to interpret results and develop a critique
- How to write a scientific article for a peer-reviewed publication

**Course Syllabus:**

The course aims to enable students to successfully carry out an occupational health research project of a work-related health problem through writing a detailed research proposal that uses quantitative research methods by:

- enabling students to formulate pertinent research questions and hypotheses pertinent to occupational health
- promoting research reading, review and writing skills (including citation and scientific argument) for purposes of research proposals

- introducing students to best data handling practices post data collection, data analysis approaches, sharing and reporting of data
- Identify the study problem: the research process, formulating the research question, developing the study objectives
- The literature review: developing the search items, conduct the literature search, summarising the review, referencing the articles, writing up the literature review
- Study design and protocol: outline of research protocol, choosing a study design, study population, sampling and subject selection; sample size calculations, dummy tables, ethical issues and reporting of results, timelines and budgets, writing up the protocol
- Measurement (collecting and analysing data): study instruments, questionnaire design, validity and reliability of data collection instruments, data collection, piloting
- Data management and manipulation: coding and data entry, descriptive statistics and correlational analysis, bivariate and multivariate analysis, producing final tables, using statistical software
- Interpreting research findings: summarising main findings, developing a critique, revisiting study objectives
- Writing a research manuscript for publication: identifying an appropriate journal, scientific writing of a manuscript

## **MPHIL (OH) CONTACT TEACHING BLOCKS**

Students, will be required to attend a 2-day face-to-face teaching block, which will cover core aspects of the curriculum and practical sessions relevant to research methods as well as data analysis. The timing of these blocks will be linked to the contact blocks of the Postgraduate Diploma in Occupational Health, which also require students to be physically present on campus. The dates and timetable for these contact blocks will be communicated to students in advance so that appropriate travel, accommodation and other logistical arrangements can be made ahead of time.

## **MPHIL (OH) PROGRAMME MEETINGS**

Quarterly programme *group meetings* will be held with registered students during the over the two-year period. Attendance of the meetings are compulsory. The meetings will be used to facilitate engagement with students on matters related to registration, academic course work, quizzes/assignments and research projects. This will enable focussed support and guidance to ensure students are progressing through all the components of the course. Meeting records, learning materials and resources that the student will be required to engage with, will be on the VULA/Amatuba platform.

***Further details of the entire Mphil (OH) Training Programme blueprint is provided in the Table.***

## MPHIL PROGRAMME LEARNING BLUEPRINT

MPHIL (OH) COURSE CODES	MPHIL (OH) CURRICULUM	PG DOH courses (contact blocks)	MPhil (OH) courses (contact blocks)	MPhil (OH) practicals (contact blocks)	MPhil (OH) Online learning/ exercises	MPhil (OH) Assignments	Consultation with supervisor on MPhil (OH) research project
PPH4072F	Occupational health risk assessment and management	Occupational health risk assessment and management					
PPH4071S	Occupational medicine and work ability	Occupational medicine and work ability					
PPH4070F	Occupational health services management	Occupational health services management					
PPH7103F/S	Epidemiology and Biostatistics for Occupational Health		Epidemiology and Biostatistics for Occupational Health (2-day block)	Linear regression analysis (small groups)  Logistic regression analysis (small groups)  Converting data into tables	<i>Epidemiology:</i> <a href="https://vula.uct.ac.za/access/lessonbuilder/item/1152896/group/38523f63-540b-46df-a8b5-4d7b4c6644c3/DOH%20Electronic%20Handbook/Module%202%20Bio_Epi_/Epidemiology/index.html">https://vula.uct.ac.za/access/lessonbuilder/item/1152896/group/38523f63-540b-46df-a8b5-4d7b4c6644c3/DOH%20Electronic%20Handbook/Module%202%20Bio_Epi_/Epidemiology/index.html</a>	Epidemiology assignment (critical appraisal/ abstract reviews)	Exploration of research topic and access to participants

MPHIL (OH) COURSE CODES	MPHIL (OH) CURRICULUM	PG DOH courses (contact blocks)	MPhil (OH) courses (contact blocks)	MPhil (OH) practicals (contact blocks)	MPhil (OH) Online learning/ exercises	MPhil (OH) Assignments	Consultation with supervisor on MPhil (OH) research project
PPH7104F/S	Research Methods for Occupational Health		Research Methods for Occupational Health (2 day block)		<p><i>Biostatistics:</i>  <a href="https://vula.uct.ac.za/access/lessonbuilder/item/1153077/group/38523f63-540b-46df-a8b5-4d7b4c6644c3/DOH%20Electronic%20Handbook/Module%202%20Bio%20Epi/Biostatistics/index.html">https://vula.uct.ac.za/access/lessonbuilder/item/1153077/group/38523f63-540b-46df-a8b5-4d7b4c6644c3/DOH%20Electronic%20Handbook/Module%202%20Bio%20Epi/Biostatistics/index.html</a></p> <p><i>Research:</i></p> <ul style="list-style-type: none"> <li>- Approach to MPhil research project</li> <li>- Literature review (library)</li> <li>- Referencing package (library)</li> <li>- Ethics course (Online)</li> <li>- Data analysis</li> </ul>	Biostatistics assignment	<ul style="list-style-type: none"> <li>- Aims, objectives, study design</li> <li>- Search terms,</li> <li>- Writing the review</li> <li>- Study methods, instruments</li> <li>- Protocol compilation</li> </ul>

MPHIL (OH) COURSE CODES	MPHIL (OH) CURRICULUM	PG DOH courses (contact blocks)	MPhil (OH) courses (contact blocks)	MPhil (OH) practicals (contact blocks)	MPhil (OH) Online learning/ exercises	MPhil (OH) Assignments	Consultation with supervisor on MPhil (OH) research project
PPH7060W	Occupational Health minor dissertation				<i>Dissertation:</i> - Dissertation guidelines  - Previous dissertations of students (VULA)		- Ethics application - Data management, analysis - Interpreting results - Dissertation compilation



## OCCUPATIONAL HEALTH MINOR DISSERTATION

### Learning outcomes (LO)

LO1	Identify the work-related health problem and formulate a study hypothesis	As part of Research Methods for OH course
LO2	Produce an evidence-based literature review	As part of Research Methods for OH course
LO3	Develop a protocol that includes the method for doing the research project	As part of Research Methods for OH course
LO4	Collect and accurately analyse data statistically	As part of Minor Dissertation
LO5	Interpreting results and developing a critique	As part of Minor Dissertation
LO6	Write a scientific paper for a peer-reviewed publication	As part of Minor Dissertation

### Learning activities

Sequence/Order	Learning activity title	Learning activity description	Course component
1	<i>Identify the study problem</i>	The research process	As part of Research Methods course
2		Define your study problem?	
3		Developing your study objectives	
4	<i>Literature review</i>	How to develop search items	As part of Research Methods course
5		How to conduct a literature review	
6		How to summarise and write up a review	
7		Referencing your articles	
8		Write up your literature review	
9	<i>Study design and protocol</i>	The outline of a research protocol	As part of Research Methods course
10		Study designs	
11		Sample size calculations and dummy tables	
12		Ethical issues and reporting results	
13		Timelines and budgets	
14		Write up your protocol	
15	<i>Collect and analyse data</i>	Apply for Faculty Human Research Ethics (HREC) approval	As part of minor dissertation
16		Study instruments	
17		Designing a questionnaire	
18		Produce your questionnaire	
19		Coding and data management	
20		Descriptive statistics and correlations	
21		Bivariate and multivariate analysis	
22		Produce your final tables	

23	<i>Interpreting research findings</i>	Summarising the main findings	As part of minor dissertation
24		Critically discussing the results	
25		Revisiting the study objectives	
26	<i>Writing a research manuscript for publication</i>	Identifying an appropriate journal	As part of minor dissertation
27		Writing your manuscript	As part of minor dissertation

Students will be provided with Faculty Guidelines for the protocol and minor dissertation for guidance

## ASSESSMENT

Assessment of coursework is by means of written assignments / portfolios, quizzes, and written examination. A pass of 50% is required for the course. The dissertation is externally examined. In addition, the examiners retain the discretion to alter any mark based on assessment of the candidate's performance during the course (or course components) as a whole. External examination of the minor dissertation.

### i) Epidemiology and Biostatistics for Occupational Health (PPH7103F/S)

- Assessment will consist of a combination of formative assessment (take-home assignments) and a final examination (summative). The examination carries 50% of the assessment weight. The examination for the course will be written at the end of the semester.
- A pass mark of 50% is required overall, with a 45% sub-minimum for the formative (assignments) and summative (final examination) components separately.
- An external examiner is appointed for the course.
- Candidates may be allowed to repeat a course once if they have failed.
- No supplementary examinations will be offered to candidates who fail a course.

### ii) Research Methods for Occupational Health (PPH7104F/S)

- Except by permission of the Senate, a candidate registered for a MPhil in Occupational Health may be refused readmission if they:
- fail two or more of the coursework courses for which he/she is registered in any year of study;
- fail a core coursework course (Research Methods in Occupational Health) more than once;
- have not completed the coursework within the first two years of first registration for the degree;
- have not submitted a final research proposal by the beginning of the third year of study since first registration for the degree;
- have not completed the required dissertation within four years of first registration for the degree.

## Distinction

The degree will be awarded with distinction to candidates who average 75% or above on coursework plus dissertation, with a 70% sub-minimum on each component (i.e. at least 70% average across all courses and at least 70% on the dissertation) and passing all courses at

first attempt. The student obtaining the highest mark in the final examination for that particular cohort, will receive the GEOFF CAMPBELL award.

## RECOMMENDED TEXTBOOKS / COMPUTER SOFTWARE

**1. Epidemiology: A research manual for South Africa.** G. Joubert, L. Myer. Fourth Edition, ISBN: 9780190758691

For further details: <https://www.oxford.co.za/book/9780190758691-epidemiology-a-research-manual-for-africa-4e#.Yqg6B3ZBw2w>

**2. Research methods in occupational epidemiology.** Checkoway H., Pearce N., Kriebel D. 2004, Second Edition. Print ISBN-13: 9780195092424

For Further details:

<https://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780195092424.001.0001/acprof-9780195092424>

**3. STATA Statistical software (for course PPH7104F/S on Research Methods for Occupational Health)**

Each student will be required to purchase STATA for purposes of data management and analysis. The software can be purchased during the second (2<sup>nd</sup>) year prior to starting the data analysis.

There are various options available for student licences as per the table below. Depending on your requirements and possible future use, you can decide which package is most appropriate for you. It is recommended that you purchase the STATA/BE (basic edition) – and at minimum, a one-year licence. The STATA license can be installed without problems on Windows, Mac and/or Unix.

### Contact details for purchase:

Mariette van der Merwe

Location: 424A Sussex Ave | Lynnwood | Pretoria | 0081 | South Africa

Tel: +27 87 183 1873 | Cell: +27 82 415 4426

email: [mariette@quantec.co.za](mailto:mariette@quantec.co.za)/[pieter@quantec.co.za](mailto:pieter@quantec.co.za)

website: [www.quantec.co.za](http://www.quantec.co.za)

### Prices quoted for 2023

**Stata 18 Prof+ Plan/Student single-user pricing in SA Rand; VAT inclusive.** Delivery via electronic download; all copies of Stata include Complete Documentation provided in PDF format only.

License Type	*Students				
	6-month lic	1-year lic	2-year lic	3-year lic	Perpetual
Stata/BE	1 050.00	2 060.00	4 050.00	6 010.00	4 920.00
Stata/SE	2 740.00	3 920.00	7 760.00	11 480.00	9 290.00
Stata/MP2	-	6 010.00	11 800.00	17 590.00	13 010.00
Stata/MP4	-	8 200.00	16 170.00	23 930.00	17 380.00

\* Students only, proof of registration required prior to order being placed.

Prof+ plan licenses are single-user licenses with PDF documentation that are available to university students and faculty. A perpetual license does not expire while an annual/1-year licenses expires one year from the date of purchase.

**Stata/BE - Basic Edition:** For mid-sized datasets.

**Stata/SE - Standard Edition:** For large datasets.