

## SHIP-DDM Course Description

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### Five modules

#### EPI 826-01: Introduction to Epidemiology and Field Epidemiology

**Learning outcome:** Explain the concepts and methods used in Epidemiology and Field Epidemiology

**Specific objectives:** By the end of the module, students should be able to:

1. Define epidemiology and field epidemiology, and describe their applications to strengthen health policies, programs and practice.
2. Describe basic measures in epidemiology for describing patterns and trends in disease frequency, health determinants, health service utilization, and performance indicators.
3. Explain key epidemiological concepts: prevalence, incidence, attack rates, morbidity and mortality rates, risk factors, health screening, health indicators.
4. Explain methods used for ensuring data quality and completeness, and for cleaning, analysing, summarizing and presenting data to inform policies, programs and practice. These objectives will be developed further in Modules EPI 826-02 and 04

#### EPI 826-02: Introduction to Health Information Systems

**Learning outcome:** Describe the structure, management and flow of data and information in the HIS

**Specific objectives:** By the end of the module, students should be able to:

1. Define HIS and describe their uses in different settings, e.g. for surveillance (e.g. CDs, NCDs), hospital patient records, pathology laboratories, pharmacies, community and primary health care services, public health and environmental health programs.
2. Describe the data and information flow from the point of data collection, collation and analysis, to the reporting of results for informing health actions, policies and programs.
3. Describe potential limitations (biases) in the quality of the data as they are transmitted along this flow chain.
4. Describes the attributes of a quality HIS.

### EPI 826-03: Investigation and management of disease outbreaks

**Learning outcome:** Students can explain and apply epidemiologic methods in outbreak investigations

**Specific objectives:** By the end of the module, students should be able to:

5. Describe the steps in investigating disease outbreaks
6. Design a questionnaire to collect and analyse data using Microsoft Excel and Epi Info software.
7. Use the Pacific Outbreak Manual as a reference for investigating outbreaks.
8. Calculate appropriate measures of disease frequency and rates (e.g. attack rates) and construct graphs, charts and summary tables.
9. Compile a report of an outbreak investigation (Situation Report or 'SitRep') or After Action Review of management of a public health emergency, and list the offices and agencies to which it should be distributed.
10. Describe the range of services and operational steps of the PPHSN relating to outbreak response.

### EPI 826-04: Management and Analysis of HIS Data

**Learning outcome:** Students can explain the standard operating procedures (SOP) for analysing data from a HIS using computer software

**Specific objectives:** By the end of the module, students should be able to:

11. Use software (EpiInfo and Microsoft Excel) to: create database; enter data, create filters and check codes; and import/export data across software.
12. Clean the dataset, conduct the analysis.
13. Describe and present the objectives, methods and potential benefits of the field epidemiology project to fellow students, work supervisor, and FNU Adjunct Faculty Members to invite feedback and incorporate their comments and suggestion to strengthen the study proposal

### EPI 826-05: Field Epidemiology Project FNU: 30 credit points

**Learning outcome:** Students can generate a report based on the field epidemiology project to inform a health policy, program or practice.

**Specific objectives:** By the end of the module, students should be able to:

1. Apply the newly acquired knowledge and skills from the previous four modules to conduct the project and prepare an information product to inform a health policy, program or practice

## SHIP – Post-Graduate Diploma in Applied Epidemiology Courses

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### The Operational Research (OR) Course

#### Course objectives and delivery

To design, conduct and report on an operational or implementation research project prioritised by the workplace.

The course is delivered through three weeklong modules aimed at:

- designing the OR protocol to address an important health problem or need;
- conducting the research
- reporting the findings so that they can be used as an evidence-base for guiding decisions on health actions, policies and programs aimed at improving health outcomes.

Each student produces a research report and recommendations to be used as an evidence-base for guiding decisions on health actions, policies and programs aimed at improving health outcomes. In addition, the student will prepare and submit a manuscript for publication in a peer-reviewed journal with the support of the Faculty, and be encouraged and supported to present the paper at national and/or or international scientific conference.

<https://www.fnu.ac.fj/study/program/?unit=EPI835>

**Unit Code:** EPI835

**Unit Name:** Operational Research

**Description:** The focus of this course is to design and conduct an Operational or Implementation Research Project. An operational research (OR) aims to develop solutions to operational problems of specific service delivery components or health programmes (e.g. at a health clinic, hospital or with a disease control program) during the execution of its routine operations, and for which practically useful answers or solutions are urgently needed. The research ensures operational relevance and therefore rapid uptake and local utilization of the findings. The OR includes an Implementation research that aims to promote the uptake and successful implementation of evidence-based interventions and policies that are of proven effectiveness. The research can consider any aspect of implementation, including constraints to implementation, the processes of implementation, the results of implementation, how to introduce potential solutions, and sustainability. This course consists of 3 modules outlining of learning outcomes and specific outputs based on developing a research protocol; conducting the research study; reporting the study results to inform senior decision-makers; Each module is initiated with an intensive 5-day in-country face to face teaching and learning sessions aimed at supporting the development of the specified outputs progressively through self-directed learning and mentor-supported activities over the one semester, full time. The effectiveness of the targeted learning outcome will be assessed through the quality of each of the three specified learning outcomes. Students will elaborate the findings of an operational or implementation research in a mini-thesis or a report of up to 3,000 to 5,000 words to inform a senior decision maker on the required actions (i.e. it needs to meet the standards for publication in a peer reviewed journal).

**Learning Target Outcomes:** On successful completion of this course, the students will be able to: 1. Design a research protocol (including study rationale, problem statement, aims, objectives, literature review and methods). 2. Implement an operational research and analyse, summarize,

Strengthening Health Interventions in the Pacific, course objectives.

explain the results, and offer recommendations to address the health need or problem. 3. Develop a mini-thesis or a report of up to 3,000 to 5,000 words to inform a senior decision maker on the required actions (i.e. it needs to meet the standards for publication in a peer reviewed journal).

## Biostatistics Course

**Unit Code:** EPI834

**Unit Name:** Biostatistics, Data Management and Analysis

**Description:** Biostatistics is the study of statistical methods (or mathematically based techniques) used to collect, analyse and interpret quantitative information in the context of biological systems. This course is designed to teach statistical methods used in public health, and medical sciences. It builds on knowledge of statistics and provides an overview of biostatistics concepts and practices used in health research. The course will cover techniques in both descriptive and inferential statistics commonly used in quantitative analyses for health research and includes practical exercises to demonstrate their use and provide experience in data management and analysis.

**Learning Target Outcomes:** On successful completion of this course, student will be able to: 1. Discuss bio-statistical concepts and apply appropriate descriptive techniques to analyse a health problem using software. 2. Discuss principles of inferential statistics and apply appropriate analytical techniques to analyse a health problem using software. 3. Develop a data management and analysis plan and apply principles of effective data management and statistical reasoning skills correctly and contextually using software. 4. Generate and interpret results of statistical analyses using software accurately.