Open University *of* Mauritius

MSc Nutrition [OUpm010]

Aims

This program aims at enabling learners to deepen their knowledge in basic as well as community nutrition and applied human nutrition. Learners will gain experience in research oriented fields towards solving problems related to food, nutrition and health. The programme provides a strong foundation for learners who wish to pursue further studies for doctoral programmes and or deepen their expertise for teaching and research.

Learners could do their research on a problem related to international nutrition as well. This program is primarily addressed to those holding a Bachelor's degree in the field. Those holding qualifications in other fields, such as biological sciences, dietetics, health, food science and food technology amongst others may also be considered.

2. Program requirements

A Bachelor's degree with at least second class honours in Nutrition, biological and dietetics, health, food science and food technology from a recognised University,including professional qualifications in the field, acceptable to the Open University of Mauritius. Candidates must have a good mastery of English Language. Prior Learning and Prior Experiential Learning may be considered by the University for admission to this program.

3. Program Duration

	Minimum	Maximum
Masters degree	2 years	4 years
Postgraduate Diploma	1 year	3 years

4. Minimum credits required for the awards

Masters degree	42 Credits
Postgraduate Diploma	30 credits without Dissertation

Each credit in the University's system is equivalent to a minimum of 20 hours of study including all learning activities (i.e. reading and comprehending the print material, listening to audio, watching video, attending tutorials/counseling sessions, writing assignment responses and preparation for the examinations). Thus, a 3 credit course involves a minimum of 60 hours of study.

5.   Assessment

Each module carries 100 marks and will be assessed as follows (unless otherwise specified):

Assessments will be based on written examination of 3-hour duration and continuous assessment carrying a maximum of 40 % of total marks. Continuous assessment will be based on assignment(s), portfolios and mini-projects. To pass any module the learner should score a minimum of 40.0% in continuous assessment and a minimum of 40.0% in the end of semester examination. Learners may re-sit up to a maximum of two failed modules for the semester of the program.

6.   Grading

Percentage Range	Description	Grade	Grade Point
70.0 and above	Excellent	A	5
60.0 — 69.9	Very Good	B	4
50.0 — 59.9	Good	C	3
40.0 — 49.9	Satisfactory	D	2
<40	Ungraded	U	0

7.   Award

Distinction   : CPA ≥ 70
Merit   : 60 ≤ CPA < 70
Pass   : 40 ≤ CPA < 60

If CPA < 40, the learner will have to repeat the entire academic year, and retake the modules as and when offered. However, s/he will not be required, if s/he wishes, to retake module(s) for which Grade C or above has been obtained. Learners are allowed to repeat twice once over the entire duration of the Program of Studies. No award is made if CPA < 40. A learner who fails a Masters project / Dissertation and subsequently passes it will only be eligible for the award of a Master Degree at a pass level.

8. Course structure

YEAR 1

MODULE NUMBER	MODULE	Semester 1	Semester 2	Number of Credits
OUpm010111	Food and Consumer Behaviour	√		3
OUpm010112	Introduction to Epidemiology	√		3
OUpm010113	Research Methods	√		3
OUpm010121	Nutrition Education		√	3
OUpm010122	Food Safety Management		√	3
OUpm010123	Advanced Human Nutrition		√	3

YEAR 2

MODULE CODE	MODULE	Semester 1	Semester 2	Number of Credits
OUpm010211	Nutritional Epidemiology	√		3
OUpm010212	Recent Advances in Food Science	√		3
OUpm010213	Bio Statistics	√		**3**
OUpm010221	Nutrition Seminar		√	3
OUpm010222	Dissertation (Research project in collaboration with Professional gyms, hotels, schools, colleges, universities, clinics, medical spas, health shops, etc) Learners will be guided by a Supervisor.		√	*12*

YEAR 1

Year 1, Semester 1

OUpm010111: Food and Consumer Behaviour

Aim

This module allows learners to deepen their understanding of the complex factors that influence consumers' food choices and behavior.

Learning outcomes:

At the end of this module, learners should be able to:

- analyse food consumption patterns locally and internationally
- explore the various determinants of food choices and food habits
- relate theoretical approaches to consumer behavior to food-related decision-making and food choices
- critically evaluate food labeling and food advertisements
- explore food-related consumer concerns and perceptions from different perspectives (health, environment, food security)

SYLLABUS OUTLINE

UNIT 1: Food Consumption Patterns
- Local food consumption patterns
- Food consumption patterns in selected developing and developed countries
- Comparison of food consumption patterns at an aggregate level and at a per capital level across different countries
- Sustainable vs. unsustainable food consumption patterns
- Drivers of food consumption patterns
- Household food consumption surveys

UNIT 2: Determinants of Food Choices and Food habits
- Food choice environment
- Biological determinants
- Cultural and social determinants
- Family and psychological factors
- Environmental factors

UNIT 3: Theoretical Approaches to Consumer Behaviour
- Consumer behaviour and consumer decision-making
- Different approaches to consumer decision-making (psychodynamic, behaviourist, cognitive, humanistic)
- Cognitive models of consumer behavior (analytic & prescriptive)
- Humanistic models of consumer behavior
- Relationship between approaches/models and food-related decisions ad choices

UNIT 4: Food Labelling
- Food labelling regulations
- Importance of food labelling
- Reading and interpreting food labels
- Critical analysis of food labels

UNIT 5: Food Advertising
- Overview of food advertising techniques
- Food advertising and obesity
- Fast food advertising
- Food advertising and its impact on children and teenagers

UNIT 6: Food-related Consumer Concerns
- Genetically Modified Foods (GMOs)
- Sustainable food production and consumption
- Role of hormones, antibiotics and pesticides in food production

Emerging food related diseases

- o Avian flu
- o Mad Cow's Diseases

OUpm010112: Introduction to Epidemiology

Aim

This module introduces learners to modern epidemiological methods used in public health e.g frequency measurements, measurements of effect, types of studies, types of bias, data analysis and concept of causality. Some key aspects in the practice of public health are covered i.e health indicators, testing, epidemiological surveillance, investigation of an outbreak, reading articles and critical review of the literature. Many practical exercises are conducted by the learner in order to allow better integration of theoretical concepts. Several scientific articles should be read.

Learning outcomes:

At the end of this module, learners should be able to:
- explain and practise some key techniques in epidemiology
- identify some routine methods of data analysis
- apply these techniques to their own area of practice.

SYLLABUS OUTLINE

UNIT 1: Basic concepts and applications of epidemiology
- Description of the health of populations; detection of causes of health problems;
- Association between ill health and determinants;
- Testing treatments and public health interventions; and monitor changes in states of health over time.

UNIT 2: Epidemiological measures of health and disease: frequency

- The frequency of occurrence of disease, injury and death often varies over time and between populations. Epidemiological principles and methods are used to describe the frequency and the determinants of these events.
- Epidemiological measures that are used to quantify the frequency of morbidity and mortality in a population.

UNIT 3: Epidemiological measures of health and disease: association and impact

- Quantify the association between a risk (or protective) factor and a disease (or other outcome).
- Estimate how much disease is caused by a certain modifiable risk factor.
- The data on the impact of risk factors or interventions are essential to assess the effectiveness and cost-effectiveness of interventions.

UNIT 4: Cross-sectional studies, Ecological studies, Cohort studies, Case–control studies, Intervention studies

- Features, advantages and limitations of the different studies mentioned above.

UNIT 5: Interpretation of the results of epidemiological studies

- The potential pitfalls in epidemiological studies and the steps involved in interpreting an observed association between an exposure and an outcome.

UNIT 6: Prevention strategies

- Different public health strategies can be used to reduce the risk of a known exposure.
- The three levels of disease prevention primary, secondary and tertiary prevention.

UNIT 7: Epidemiological surveillance and routine data

- Public health surveillance, which describes the information systems and infrastructure used by public health agencies to monitor the health of their communities.
- The uses of data and their limitations.

UNIT 8: Screening and diagnostic tests

- Secondary prevention called screening. Screening is a way of improving patient outcomes by detecting a disease at an earlier, more treatable stage, or by avoiding recurrence of disease.
- Certain statistical methods for assessing the quality of screening and diagnostic tests to make informed decisions about their use and interpretation.

OUpm010113: Research Methods

Aim
This module aims at providing the opportunity to acquire a thorough knowledge of research methods as well as skills for completing the dissertation. It also provides learners with an understanding of the ontological and epistemological issues that underpin the choice of a research topic and the methodology. The module will help learners in identifying a subject worthy and capable of research and to formulate a plan for the implementation of the research process. The module takes a detailed approach on how to develop a researchable question and key research methods used in the field of nutritional research. Learners will be able to select and apply appropriate research strategies with particular reference to issues of validity and reliability and objectivity of the research process. They will also find the methods and techniques useful when carrying out research at their workplace. Learners will also be able to write a protocol/proposal for a small scale research project in nutritional science, including methods and a realistic project plan.

Learning outcomes:

After successful completion of this module, learners should be able to:
- Write a research protocol/proposal
- Conduct literature review
- Develop a sampling strategy
- Explain and apply various research methods
- Explain ethics in research

SYLLABUS OUTLINE

UNIT 1: Thinking About Research

- What is Research?
- Knowledge, Theories, Paradigms and Perspectives. Ontology & Epistemology
- The Nature of Data
- Research Questions, Objectives, Hypotheses and Operational Definitions
- Reliability and Validity
- Research as an Ethical and Cultural Issue

UNIT 2: Preparing for Research

- Planning a Research Project
- Reviewing the Literature
- Research Design
- Choosing Methods
- Quantitative research methods
- The basic laboratory experiment
- Advanced experimental design
- Cross sectional or correlational research: Non-manipulation studies
- Longitudinal studies
- Sampling
- Sampling and population surveys
- Why qualitative research?
- Qualitative research methods
- Research Protocol/Propos

UNIT 3: Data Collection

- Collecting Data
- Data Collection Skills
- Questionnaires
- Semi-structured Interviews
- Focus Groups
- Observation
- Narrative Data
- Documents
- Secondary Sources of Data

UNIT 4: Data Analysis

- Preparing data for analysis
- Working With Data
- Univariate Analysis
- Bivariate Analysis
- Multivariate Analysis
- Qualitative Data Analysis

UNIT 5: Ethics in Research

- Stances on Ethics
- Ethical Principles
- Ethical considerations
- Data Management
- Reciprocity and trust

OUpm010121: Nutrition Education

Aim

This module focuses on nutrition education for the community and different target groups. It inculcates in learners the required knowledge and skills to develop, implement and evaluate nutrition education programmes.

Learning outcomes:

At the end of this module, learners should be able to:

- discuss the scope of nutrition education and roles of nutrition educators in the community.
- demonstrate sound knowledge of different theories and models related to behavioural action and behaviour change.
- Situate the role of environmental factors in supporting appropriate behavioural action and change.
- Design, implement and evaluate nutrition education programmes in a systematic manner and using relevant theories and models.
- Analyse factors to be considered when designing and implementing nutrition education programmes for different target groups.

SYLLABUS OUTLINE

UNIT 1: Overview of Nutrition Education
- Scope of nutrition education
- Importance of nutrition education
- Roles of nutrition educators
- Ethics in nutrition education
- Nutrition education policies and practices

UNIT 2: Theories and Models of Behaviour and Behaviour Change
- Selected theories of behavior change
- Process/Phases of behaviour change
- Health Belief Model
- Theory of Planned behavior
- Social Cognitive theory
- Self-regulation models
- Transtheoretical model

UNIT 3: Environmental Support for Behaviour Change
- Environmental mediators of action and behavior change
- Working with decision makers and policy makers
- Organisational policy activities
- Community-level activities

UNIT 4: Designing Nutrition Education Programmes
- Analysing of needs and behavior
- Identifying of potential mediators of action and behavior change
- Selecting theory and creating a conceptual model
- Defining educational goals and objectives
- Designing theory-derived educational strategies

UNIT 5: Implementation of Nutrition Education Programmes
- Communication model
- Learning styles
- Group learning experiences
- Oral presentations and workshops
- Supporting visuals
- Developing and using nutrition education materials
- Mass media and social marketing activities

UNIT 6: Evaluating Nutrition Education Programmes
- Importance of evaluation
- Types of evaluation
- Designing the evaluation
  - Process evaluation
  - Outcome evaluation

UNIT 7: Working with Different Target Groups
- Working with:
  - Pre-school and primary school children
  - Adolescents
  - Adults
  - At-risk groups
  - Low-literacy groups

- Cultural sensitivity and cultural competence

OUpm010122: Food Safety Management

AIM:

The aim of this module is to provide an in-depth knowledge of food safety and food hygiene principles and practices. It will provide the necessary skills needed by food handlers in a food business within the catering and hospitality industry to develop and implement food safety management systems.

LEARNING OUTCOMES:

At the end of this module learners should be able to:

• Recognize how the individual can take personal responsibility for food hygiene
• Assess how food safety and associated food hazards impact on community health
• Draw up programmes and procedures for good hygiene practices
• Ensure control based upon an awareness of food safety management systems
• Apply good practice in the handling, processing and preparation of safe food
• Ensure compliance with legislation

UNIT ONE

Control and management of personal hygiene.
1. Personal hygiene
2. Personal cleanliness
3. Illness and protection against getting sick
4. Personal behaviour
5. Reduction of the risk of spreading germs
6. Prevention of contamination of food and ingredients

UNIT TWO

Food safety hazards in foods
1. Types of hazards
2. Potential environmental hazards
3. Managing the risks of hazards
4. Impact on the community

UNIT THREE

Food Contamination
1. Types of Contaminants
2. Microbial
   a. Bacteria, fungi, yeasts
   b. Sources of microbial contamination

3. Chemical
   a. Fertilizers, pesticides, sanitizing agents etc
4. Physical
   a. Harmful extraneous materials
5. Allergens

UNIT FOUR

Food borne illnesses
1. Contamination
2. Common bacterial causes of food borne illnesses
3. Toxins and their effects
4. Prevention of food borne illnesses
5. Recommended practices for prevention

UNIT FIVE

Implementation of good practices
1. Cleaning and disinfection - Definitions
2. Importance of Cleaning and Disinfection
3. Appropriate Use of Cleaning and Disinfection Chemicals
4. Cleaning and Disinfection Management
5. Monitoring Effectiveness

UNIT SIX

Other Control in the area of food safety
1. Pest control: Rodents, Insects and birds
2. Product Contamination control
3. Control of good practice in the workplace

UNIT SEVEN

Compliance of a food business with legislation
1. Legal aspects - Food handler's certificate
2. Sanitation of facilities and environment
3. Food processing areas
4. Controlling hazards and supervising
5. Law enforcement
6. Sanitary Controls

UNIT EIGHT

Providing customer value, satisfaction and retention in catering and hospitality business
1. The client's health welfare and safety
2. Needs of the personal and organizational consumer

OUpm010123: Advanced Human Nutrition:

Aim

Review and critical analysis of recent scientific work can be used to estimate the nutritional needs of the human being and to establish nutritional standards. In this course, specific nutritional problems will be studied for a defined population e.g. estimation of nutritional needs, the main determinants of nutritional needs, anthropometric measurements, methods of assessment of dietary, biochemical indices of nutritional status, and therapeutic nutrition will also be included. The course will be given as lectures, discussion workshops and seminars.

<u>Learning outcomes</u>: Students will be able to:

- describe the structure, function, digestion, transport, storage, and metabolism of the nutrients.
- differentiate among metabolic pathways in the utilization of macronutrients as well as the interrelationships among nutrients in metabolism.
- demonstrate comprehension and interpretation of nutrition-related research as reported in scientific publications.
- identify nutritional risk factors that may lead to chronic disease: cancer, cardiovascular disease, etc.

UNIT 1: FOOD AND HUMAN BODY

- Nutrients
- Recommended Dietary Allowances
- Dietary reference intake
- Food sources of Nutrients
- Food components and Human senses
- Appetite

UNIT 2: HUMAN DIGESTION AND ABSORPTION

- Gastrointestinal: Anatomy, Movement, Motility, Neural activity, Blood supply, Flow regulation, Endocrine, Paracrine system
- Digestion and Absorption
- Large Intestine

UNIT 3: MACRONUTRIENTS AND WATER

- Carbohydrates
- Lipids
- Protein
- Water: Properties of water, Distribution of water in the body, Sweat water, Urinary water, Water balance, Dehydration, Intoxification

UNIT 4: MICRONUTRIENTS

- Fat soluble vitamins: A, D, E, K
- Water soluble vitamins: B,C, folate, Biotin, Pantothenic acid
- Major Minerals: Calcium, Magnesium, Phosphorus, Potassium, Sodium, Chloride, Sulphur

- Minor Minerals: Iron, Zinc, Iodine, Copper, Selenium, Fluoride, Chromium, Manganese, Cobalt, Boron, Molybdenum, Vanadium, Nickel, Arsenic, Silicon

UNIT 5: ENERGY METABOLISM
- Total energy expenditure
- Components of Energy metabolism

UNIT 6: BODY COMPOSITION AND OBESITY
- Methods for assessing body composition
- Variation in Body composition
- Obesity: Gender and Age, Diet related Diseases
- Diet therapy
- Pharmacological treatment and obesity
- Surgical treatment
- Liposuction

UNIT 7: NUTRITION AND ACTIVITY
- Muscles and adaptations
- Hormonal adaptations
- Exercise

UNIT 8: NUTRITION SUPPLEMENTS, NEUTRACEUTICALS AND NUTRITION IN THE 21ST CENTURY
- Herbs
- Coenzymes
- Soy products
- Common Food additives
- Common Medicinal Plants

UNIT 9: NUTRITION AND HUMAN REPRODUCTION
- Pregnancy
- Lactation
- Infancy

UNIT 10: CARDIOVASCULAR DISEASE AND NUTRITION
- Definition, Etiology, Prevention
- Clinical intervention
- Dietary Diets

UNIT 11: CANCER AND NUTRITION
- Tumors and Cancer
- Definition, Etiology, Prevention
- Chemoprevention
- Dietary and Behavioural influences on cancer
- Unproven oral treatment option
- Nutritional concerns of conventional therapies

UNIT 12: DIABETES AND NUTRITION
- Definition, Etiology, Prevention

- Medical complication associated with diabetes Mellitus
- Medical Nutritional therapy
- Non-nutritional medical therapy

UNIT 13: OSTEOPOROSIS AND NUTRITION
- Definition, Etiology, Prevention
- Menopause and Estrogen
- Medical, Nutritional and Behavioural treatment

YEAR 2:

OUpm010211: Nutrition Epidemiology

Aim
This module looks at the biological basis of nutrition and mechanisms by which diet can influence health. This includes a basic understanding of metabolism, physiology, and molecular genetics. It also provides rigorous training in epidemiology and biostatistics as well as the biological aspects of nutrition. Learners will be able to investigate relationships between diet and disease. **Learning outcomes:** At the end of this module, learners should be able to: • develop quantitative skills required for the evaluation of diet and disease relationships in epidemiologic studies. • formulate research proposals for the study of diet and disease. This requires the integration of knowledge about human nutrition with epidemiologic concepts. • develop skills in the oral and written communication of scientific information.

SYLLABUS OUTLINE

UNIT 1

Overview of Nutritional Epidemiology
- Epidemiologic approaches to Diet and Disease
- Correlation studies
- Special Exposure Groups
- Migrant studies and Secular trends
- Case-Control and Cohort Studies
- Controlled trials
- Interpretation of Epidemiologic Data
- Interpretation of Null Associations
- Multivariate relationships of Diet and Disease

UNIT 2

Food and Nutrients
- Nutrients versus Foods
- Food composition, Data sources and computation systems
- Specific sources of Food composition Data
- Nutrient computation systems

UNIT 3

Nature of Variation in Diet
- Number of days necessary to estimate true intake
- Implications for Developing countries
- Food record methods
- Strengths and Limitations of 24 hr dietary recall and food record methods
- Number of Days and which Days
- Analysis of Food intake Data
- Sources of error in nutrient calculation

UNIT 4

Food Frequency Methods
- Reproducibility and Validity of Food Frequency Questionnaires
- Recall of Remote Diet
- Surrogate Sources of Dietary Information

UNIT 5

Biochemical Indicators of Dietary Intake
- Implications of Total Energy Intake for Epidemiologic Analysis
- Correction for the Effects of Measurement Error
- Issues in Analysis and Presentation of Dietary Data
- Nutrition Monitoring and Surveillance

OUpm010212 : Recent Advances in Food Science

Aim
This module will focus on the different techniques in food processing, preservation and development and their consequent impacts on human health.

Learning outcomes:

At the end of this module, learners should be able to:

- Discuss the importance of food preservation and processing.
- Describe new processing methods used in food industry and their effects on the nutritive value.
- Discuss some alternative techniques to heat processing on food.
- Describe and explain the steps involved in the manufacture of major food groups.
- Conduct research on new product development and their nutritional value.
- Demonstrate awareness to functional foods, herbalism and nutritional enhancement.

SYLLABUS OUTLINE

UNIT 1

Food Processing and their Effects on Nutritive Value
- Importance food processing & preservation
- Overview of physical and chemical methods of food preservation
  - Physical method- chilling/Freezing
  - Chemical method- Thermal processing (Blanching, Pasteurisation, Sterilisation); Moisture removal & Chemical treatment
- Effect of processing on nutritive value of food.
- Hurdle technology & Novel technique of food preservation

UNIT 2

Alternative and Advance Methods to Heat Treatment
- Dielectric heating
- Food irradiation
- Ohmic Heating
- Infrared
- Microwave

UNIT 3

Processing of Major Food Groups
- Fruits & vegetable processing
- Milk & milk product
- Meat, poultry and seafood processing
- Shell egg and egg product
- Cereal and cereal product

UNIT 4

Valorization of Food processing by-products
- Plant based food processing industry
    - Cereal
    - Oil & Seeds
    - Roots and Tubers
    - Sugarcane
    - Fruits & Vegetables
    - Beverages
- Animal product based food processing industry
    - Dairy by-products
    - Meat, poultry and egg
    - Seafood

UNIT 5

Food Packaging
- Purpose of packaging
- Types of packaging material
- Food packaging interaction
- Controlled- or modified-atmosphere storage and packaging
- Migrating substances
- What are the consequences of these migrating substances on food and health?
- Active food packaging technology
- Application of antioxidant, cold plasma technology, anti-solvent precipitation use, in food packaging

UNIT 6

Functional Foods
- What are functional food
- Health benefit of functional food
- How to assess the scientific evidence of functional food
- Research challenges for functional food

UNIT 7

Industrial Enzyme Production for Food Application
- Mechanism of action of enzymes
- Advantages of using enzymes
- What techniques are used for enzymatic production? Traditional methods compared to Recombinant DNA Technology
- Various food enzymes and their applications in food science
    - Food processing

o Brewing industry
  o Fruit juice production
  o Dairy Industry
- Discuss the effect of enzymatic interesterification on human health as compared to chemical esterification.

OUpm010213: Bio Statistics

Aim

This module provides an introduction to important topics in biostatistical concepts and reasoning. It is an introduction to the field and provides a survey of data and data types. Specific topics include tools for describing central tendency and variability in data; methods for performing inference on population means and proportions via sample data; statistical hypothesis testing and its application to group comparisons; issues of power and sample size in study designs; and random sampling and other study types. The emphasis is on interpretation and concepts and learners will also have the opportunities to use SPSS for statistical analysis,

Learning Outcomes

At the end of this module, learners should be able to:

- Recognize and give examples of different types of data arising in public health and clinical studies

- Interpret differences in data distributions via visual displays

- Calculate standard normal scores and resulting probabilities

- Calculate and interpret confidence intervals for population means and proportions

- Interpret and explain a p-value

- Perform a two-sample t-test and interpret the results; calculate a 95% confidence interval for the difference in population means

- Select an appropriate non-parametric test for comparing two populations on a continuous measure, when the two sample t-test is not appropriate

- Interpret results from Analysis of Variance (ANOVA) a technique used to compare means amongst more than two independent populations and its non-parametric attitude.

- Choose an appropriate method for comparing proportions between two groups; construct a 95% confidence interval for the difference in population proportions

- Interpret relative risks and odds ratios when comparing two populations

- Assess why survival (timed to event) data requires its own type of analysis techniques

- Construct a Kaplan-Meier estimate of the survival function that describes the "survival experience" of a cohort of subjects

- Interpret the result of a log-rank test in the context of comparing the "survival experience" of multiple cohorts

- Interpret confounding and interaction in studies

- Use SPSS/STATA or any other Statistical Software package used by the OU.

- Interpret output from the statistical software package related to the various estimation and hypothesis testing procedures covered in the course.

SYLLABUS OUTLINE:

UNIT 1

Describing Data

- What role does statistics have in public health?
- Types of data: continuous, binary, categorical, time-to event
- Continuous data: numerical summary measures
- Continuous data: visual summary measure
- Sample data versus population (process) level data
- The normal distribution
- Means, variability, and the normal distribution
- Calculating normal (z) scores
- Means, variability and z-scores for non-normal distributions

UNIT 2

Biostatistics Issues

- Planning/design of studies
- Primary question(s) of interest:
- Quantifying information about a single group?
- Comparing multiple groups?
- Sample size
- How many subjects needed?
- How many in each of the groups to be compared?
- Selecting study participants
- Randomly chosen from "master list?"
- Selected from a pool of interested persons
- Take whoever shows up?

If group comparison of interest, how to assign to groups?

1. Biostatistics Issues:
   - Data collection
   - Data analysis

- What statistical methods are appropriate given the data collected?
- Dealing with variability (both natural and sampling related): Important patterns in data are obscured by variability
- Distinguish real patterns from random variation
- Inference: using information from the single study coupled with information about variability to make statement about the larger population/process of interest

2.   Biostatistics Issues:
- Presentation
- What summary measures will best convey the "main messages" in the data about the primary (and secondary) research questions of interest
- How to convey/ rectify uncertainty in estimates based on the data
- Interpretation
- What do the results mean in terms of practice, the program, the population etc.?

UNIT 3

Sampling Variability and Confidence Intervals

- Sampling distribution of a sample mean
- Variability in the sampling distribution
- Standard error of the mean
- Standard error vs. standard deviation
- Confidence intervals for the population mean μ
- Sampling distribution of a sample proportion
- Standard error for a proportion
- Confidence intervals for a proportion

UNIT 4

An Introduction to Hypothesis Testing: The Paired t-Test/Mann Whitney U test

- Comparing two groups: the paired data situation
- Hypothesis testing: the null and alternative hypotheses
- Relationships between confidence intervals and hypothesis testing when comparing means
- p-values: definition, calculations, and more information

UNIT 5

Comparing Means among Two (or More) Independent Populations/Wilcoxon Test

- CIs for mean difference between two independent populations
- Two sample t-test
- Non-parametric alternative, Mann Whitney (FYI, optional)
- Comparing means amongst more than two independent populations:
- ANOVA/Konskal Wallis test

UNIT 6

Measures of Association, Sampling Variability, Confidence Intervals and p-values for Binary Outcomes

- Simple Linear Regression
- Multiple Linear Regression
- Comparing Proportions between Two Independent Populations
- When Time is of Interest: The Case for Survival Analysis

UNIT 7

Time to Event Data and Study Design

- Randomized/controlled study design
- Methods of randomization
- Natural experiments
- Observational studies
- Case/control studies
- Cohort studies

UNIT 8

Confounding and Effect Modification

- Confounding factors

- Effect modification/statistical interaction

UNIT 9

Introduction to SPSS

OUpm010221: Nutrition Seminar

Aim
Learners will present a recent original research article in which the methods and data presentation will be critically analyzed. The article must be approved by the instructor. From time to time Research scientists from different research centres may be invited to present their work. Consequently, learners will have to write a summary of the presentation given by the scientist. **Learning outcomes**   At the end of this module, learners should be able to: • develop their communication skills by applying the principles of teaching, using PowerPoint presentations, questioning and discussing about the different nutrition topics to be presented. • broaden their knowledge about different topics concerning nutrition. • keep up-to-date with new research in Nutrition

UNIT 1

Chronic Disease Prevention and Management
- Medical Nutrition Therapy
- Choices for Managing Nutrient Deficiencies'
- Functional Foods for Optimal Health
- Nutrient Intake with a Carbohydrate Restricted Diet
- The Nature of Health: Lifestyle Choices for Disease Prevention
- Eating to Prevent Cancer
- Nutrients and Cardiovascular Disease: An Update
- Diet and Metabolic Syndrome: Practical Approaches to Lowering Risks for Heart Disease and Diabetes

UNIT 2

Family Focused Nutrition
- Family Meals. Resources and Strategies for Promoting Family Mealtimes
- Family Influences on Children's Eating Habits
- Food, Fitness, and Fun: Putting It All Together for the Healthy Kids, Healthy Families, Healthy Weights

- How to Feed Yourself and Your Family Better
- Family Meals in a Fast Paced World
- Making the Menu: Teaching Clients and Patients to Live Healthier, Stress: Through Planning, Shopping and Cooking, Easy, Budget, Friendly Meals

UNIT 3

Food Service and Culinary Arts
- Nutrition Today: It's a Whole New Food Environment
- New Rules, Recipes and Regulations
- Strong Bodies, Smart Brains, Super Behavior: How Nutrient Rich Foods and Physical Activity Help All Kids Be Ready to Succeed
- Harmonizing Menus to Bring Diverse Tastes to the Table
- The Art and Science of Food and Wine Pairings

UNIT 4

Topics in the Nutrition Environment
- Food and Nutrition Trends :It's All About Trends: What the Future Holds for Food, Health and Healthy Lifestyles
- Food Labeling
- Organic, Natural, and Grass

UNIT 5

Lifecycle Nutrition
- Prenatal and Infancy
- The Prenatal Nutrition Environment and its Effect on longevity
- Early Childhood Nutrition
- Adolescence: Setting the State for Lifelong Health
- Nutrition Concerns for Adulthood
- Healthy Eating for Women and Men
- Nutrition during Elderly

UNIT 6

Sports Nutrition
- Fitness, Sports, and Nutrition
- High Quality Protein in Promotion of Exercise Adaptation
- Athlete's Diet
- Protein: The Key to Fitness,
- Performance, and Weight Loss
- Feeding the Recovery Muscle

OUpm010222: Dissertation

(Research project in collaboration of Professional gyms, hotels, schools, colleges, universities, clinics, medical spas, health shops, etc….) Learners will be guided by a research director and a collaborator, where applied.

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