

**COURSE PROFILE – (2015-2018 MPHIL FOOD AND NUTRITION)**

<b>Course Code</b>	<b>Course Title</b>	<b>Credits</b>	<b>CA</b>	<b>End Semester</b>	<b>VIVA</b>	<b>Total</b>
<b>13M15/RML</b>	Research Methodology and Introduction to Teaching/ Learning Process	<b>5</b>	<b>40</b>	<b>60</b>		<b>100</b>
<b>13M15/APF</b>	Advanced Paper in Foods and Nutrition	<b>5</b>	<b>40</b>	<b>60</b>		<b>100</b>
<b>13M15/INT</b>	Internal Paper on Dissertation	<b>5</b>	<b>40</b>	<b>60*</b>		<b>100</b>
<b>13M15/PRO</b>	Dissertation	<b>21</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>200</b>

**\*Internal Valuation**

**Paper - I**  
**Research Methodology and Introduction to Teaching / Learning Process**

**CORE : 1**

**COURSE CODE : 13M15/RML**

**Teaching Hours : 75 hours**

**Credits : 5**

**OBJECTIVES:**

To introduce the students to

- ❖ To enable students to apply statistical procedures to analyze numerical data and draw inferences.
- ❖ Make students aware of the principles and techniques involved in research methodology.
- ❖ To get an overview of the methodologies used in educational research

**UNIT - I      Formulation of a research problem :** research designs, meaning, principle and components, Design of experiments, principles of experimentations. Sampling methods, different types of sampling designs, sampling errors, sampling bias.  
**Methods and tools of data collection :** Observation, questionnaire, interview, checklist, rating scale, attitude scale, reliability and validity of tools.

**UNIT - II      Linear Programming -** type of variables, solving problems, interpretation, use in field of Food & Nutrition. Data processing using the computer coding and classification, programming and analysis.

**UNIT - III      Processing and analysis of data :** Editing, coding, classification, tabulation, Parametric or standard tests, chi-square test. Analysis of variance and covariance. Non-parametric or distribution free tests. Uses of multivariate analysis techniques (concepts only) classification, methods - factor analysis and path analysis, cluster analysis. Handling of qualitative and quantitative data.  
**Report Writing:** Significance, different steps in writing a report, Drawing inferences, evaluation.

**UNIT - IV      Methods of teaching / learning relevant to higher education:** Objectives, advantages, limitations. Methods relating to different levels instructional, self study, seminar, participatory method. Laboratory and project work, case study, field trips etc., Innovations in nutritional fields. Methods used in non-formal education, vocational training, adult education.

**UNIT - V      Organization, Planning and management of the classroom / field :** Planning course work, practical work, field trips, seminar etc., Teacher - student relationship, Student interaction and participation.

Evaluation methods - classroom / field; objectives and functions of evaluation, principles of evaluation. Tool for testing / evaluation: Internal assessment - teacher - made tests, objective type, short answer and essay questions, construction of questions and question bank, performance tests, observation technique, product evaluation, appraising personality traits. The marking and grading systems.

**REFERENCE :**

- \* Kothari C.R. (2000) Research Methodology - methods and techniques, 2<sup>nd</sup> ed. Wishwa Prakasham Publishing, Chennai.
- \* Kerlinger, F.N. and Pedhazur, E.J. (1993) Foundations of Behavioural Research, 2<sup>nd</sup> ed. Holt, Reinhart and Winston, New York.
- \* Gupta, S.P. Statistical Method (2003) Sultan Chand and sons, Educational Publishers New Delhi.
- \* John W. Best and James V. Kahn. (2000) Research in Education, 7<sup>th</sup> Edition, Prentice Hall of India Pvt. Ltd., New Delhi.
- \* Lokesh Koul. Methodology of Educational Research, 3<sup>rd</sup> edition Vikas publishing House Pvt. Ltd., New Delhi.
- \* William Giles Campbell, Form and style in Thesis writing, Houghton Mifflin Company, Boston.
- \* Elhance. D.N. Veena and Elhance and Agarwal B.M. (2005) Fundamental of statistics, 48<sup>th</sup> Edition, Kitab Mahal, Allahabad.
- \* Sadhu A.N and Amarjit Singh (1992) research Methodology in social science.

## **Paper - II**

### **Advanced Paper in Foods and Nutrition**

**CORE : 2**

**COURSE CODE : 13M15/APF**

**Teaching Hours : 75 hours**

**Credits : 5**

#### **OBJECTIVES:**

- ✓ To understand and appreciate the interrelationship between health and nutrition.
- ✓ To equip the students in the application of various nutrition techniques in pursuing Nutritional research.

#### **UNIT - I Nutrition and Immunity :**

Immunity - Review, Goals of immune modulation - phagocytosis, chemotaxis, antigen recognition, immune cell proliferation, maintenance of mucosal barrier; Modulation of inflammatory response; Nutrients with immuno modulating properties - Arginine, Glutamine, Omega 3 fatty acids, sulphur containing amino acids, nucleotides, ornithine, alpha keto glutarate and taurine; Supplementation, beneficiary effects . Prebiotics Probiotics and symbiotics.

#### **Unit - II: Nutrition, Health and Disease :**

Assessment of nutritional status - current concepts and methods; National Nutrition Policy - Programmes in combating malnutrition in India; Nutrition and drug interaction; Nutrition and behaviour; Recent concepts of fats, protein, available and unavailable carbohydrate in combating non-communicable diseases; Role of antioxidants and phytochemicals, zoo chemicals & herbs.

#### **Unit - III : Techniques in Nutrition Research :**

Principles, procedure and applications of Electrophoresis, Chromatography, Colorimetry, Spectrophotometry, Fluorimetry, Atomic absorption spectrophotometry, Use of auto analyzer, Flame photometer.

Microbiological assay, in vitro studies, Radio isotope studies, Animal and Human experimentation, epidemiology – Cross sectional double blind studies.

#### **Unit - IV : Food Safety, Adequacy and Food allergies :**

Recent developments in food processing and preservation; Post Harvest technology; Novel protein foods - Source, nutritive value and uses; naturally occurring food toxicants and chemical additives in food.

Classification of food allergens based on food groups and Nutritional intervention in food allergies.

## **Unit V: Macronutrients in Parenteral and Enteral Nutrition**

Parenteral and Enteral nutrition - Review, risk of deficiency, toxicity and adverse effects; Pharmacological use of trace elements - zinc, selenium and copper, chromium, manganese and molybdenum in enteral and parenteral solutions. Drug nutrient interactions.

### **REFERENCE :**

1. Whitney, E.N. and Rolfes, S.R. Understanding Nutrition, 8<sup>th</sup> Edition, Wordsworth Thomson Learning, Australia, 2002
2. Shils, M.E., Olson, J.A. and Shike, M. Modern Nutrition in Health and Diseases, 8<sup>th</sup> edition, Lea and Febiger Company, Philadelphia, 2000
3. Mahan, L.K. and Stump, S.E., Krause's Food Nutrition and Diet Therapy, 12<sup>th</sup> edition, W.B. Saunders Company, Philadelphia, 2002
4. Wardlaw Gordon M. and Margaret Kessel, Perspectives in Nutrition, 5<sup>th</sup> edition, McGraw Hill publishers, Boston, London, Sydney, 2002
5. Davidson and Passmore R and Brock J.B. Human Nutrition and Dietetics. The English Languages book society and Churchill Livingstone, 1996
6. Garrow et al., Human Nutrition and Dietetics 10<sup>th</sup> edition Churchill Livingstone, 2000
7. James L Groff, Sareen. S. Gropper Advanced Nutrition and Human Metabolism 3<sup>rd</sup> edition, Wadsworth Thomson Learning 2001
8. Carroll A. Lutz & Karen Rutherford Nutrition and Diet Therapy 2<sup>nd</sup> edition, F.A. Davis Company, Philadelphia, 1997
9. Ruth A. Roth, Carolynn E. Townshend, Nutrition and Diet Therapy 8<sup>th</sup> edition, Thomson Delmar Learning, 2003
10. Gibney, J.M., Margetts, B.M., Kearney, J.M. and Arab, L, Public Health Nutrition, U.K., Blacwell publishers, 2005.

### **PERIODICALS :**

- 7 Journal of American Dietetic Association

1. American Journal of Clinical Nutrition
2. British Journal of Clinical Nutrition
3. Indian Journal of Nutrition and Dietetics
4. European Journal of Clinical Nutrition
5. Nutrition Today
6. Journal of Nutrition and Dietetics
7. Journal of enternal and parenteral nutrition

**WEBSITES AND e-LEARNING SOURCES :**

[www.eatright.org](http://www.eatright.org).

[www.ifcinfo.health.org](http://www.ifcinfo.health.org).

[www.nutrition.gov](http://www.nutrition.gov)

[www.diabetes.org](http://www.diabetes.org)

[www.americanheart.org](http://www.americanheart.org)

### **Paper III**

#### **Internal Paper on Dissertation**

**Course Code: 13M15/INT**

**Credits: 5**

This paper should deal in depth, the contours of the research topic undertaken by the candidate with reference to:

Historic Background

Literature Survey

Designing of the Project

Procedures involved

Parameters and criteria for various measurements

Data Analysis

Interpretation

Inferences, conclusions and recommendations.

**Paper IV  
Dissertation**

**Code: 13M15/PRO**

**Credits: 21**

Dissertation assessment is done based on the following criteria: (100 marks)

1. Originality
2. Literature Survey
3. Research Design
4. Data Collection & Methodology
5. Data Interpretation
6. Report Writing
7. Significant Conclusions/ Contribution to Community or existing research base

CA: (50 marks)

Viva voce: (50 marks)