

Course Title: Research methodology

Course level: Four credit course

Course code: HSR 801

Course code: HSR 801 (AIMS)

Course credits: Four

Mode: Offline Real time Lecture based modules

Course structure: This course consists of 20 modules. Each module will contain:

Course Schedule: Wednesdays 4 to 7 PM (June to December)

Syllabus

Session Titles	Details
1. Introduction to Research Methodology	Course introduction, history of medical research, landmarks in medical research, basic concepts of research methodology
2. Nature of Data	Measures of central tendency, Measures of dispersion, Variance & SD, Coefficient of Variation, Tests for Normality, Central Limit Theorem, Standardized scores.
3. Hypothesis Testing – Means part I	Null versus Alternate Hypothesis, Type I & Type II errors, Standard Error, Critical Value, Z test, Z table.
4. Hypothesis testing Means Part II	T distribution, degrees of freedom, t tests – paired t test, independent t test, Welch's t test, assumptions for t test, one tail vs two tailed testing, Effect size options, Non-Parametric alternatives to T tests.
5. Hypothesis testing -Categorical data part I	Dichotomous data, Binomial distribution, One sample test for proportions, Assumptions for one sample test for proportions, Two independent samples test for proportions, Assumptions for two independent samples test for proportions.
6. Hypothesis testing -Categorical data part II	Chi Square distribution, Pearson's Chi Square test, Assumptions for Pearson's χ^2 , Yates Corrected χ^2 , Fischer's Exact test, paired samples for proportions, McNemar's χ^2
7. Hypothesis testing -Categorical data part III	Special χ^2 Tests – Mantel Haenszel χ^2 for two factors, Mantel Haenszel χ^2 for linear trend. Effect Size for categorical data analysis.
8. Hypothesis testing -ANOVA - One way	Basics of One-way Anova – Assumptions of One way Anova, F distribution, F test, F table, Post hoc comparisons, Strength of relationship in Anova.
9. Hypothesis testing -ANOVA - Two Way	Basics of Two-way Anova – Assumptions of Two-way Anova, Hypothesis testing in two-way Anova, treatment groups, Interaction, Strength of relationship in two-way Anova.

10. Hypothesis testing ANOVA - Repeated Measures	Basics of Repeated Measures Anova – Assumptions, Normality, Sphericity, Hypothesis testing in RM Anova, Types of RM Anova – time course RM Anova & different conditions RM Anova, Interaction, Strength of relationship and effect size in RM Anova.
11. Covariance & Correlation	Basics of Covariance, Scatter plots, Basics of Correlation, Pearson's Correlation coefficient, Statistical testing of Pearson's r, Assumptions for Pearson's r, grading and interpretation of correlation coefficients, Spearman's Correlation.
12. Simple Linear Regression	Ordinary Least Squares (OLS) method, regression line & regression equation, regression coefficients, F table for regression, magnitude of effect in regression, Coefficient of Determination.
13. Multiple Linear Regression	Basics of Multiple Linear Regression, Anova Table in Multiple regression, Multiple correlation coefficient (MCC), R^2 , Adjusted R^2 , Reporting guidelines for multiple linear regression.
14. Logistic Regression and Poisson's Regression	Basics of Logistic Regression (Log.Reg), deriving and interpreting ORs in Log.Reg, Pseudo R^2 statistics. Basics of Poisson distribution, Poisson Regression Equation, Interpreting the output in Poisson Regression.
15. Survival Analysis Part A	Basics of Survival Analysis, Censoring, Truncation, Mean Survival, Survival rate, Survival Analysis techniques – Actuarial Approach.
16. Survival Analysis Part B	Kaplan Meier Approach (KMA), Hazard function, Assumptions of Survival Analysis, comparing two or more groups in Survival Analysis, Cox proportional Hazards (PH) model - basics.
17. Study Designs A - Randomized Control Trials	Basics of Randomized Control Trial (RCT) design, Classification of RCTS, RCT designs, Components of RCT design, Analysis of data in RCTs, interpreting results of RCTs, Bias in RCTs.
18. Study Designs B - DAS (Diagnostic Accuracy Studies)	Basics of Diagnostic accuracy designs, Evaluation of a Diagnostic accuracy study (DAS), Diagnostic accuracy parameters, Comparing performance of two DAS, bias in DAS.
19. Study Designs C- Cross Sectional studies & Case control studies	Basics of Cross-sectional surveys/studies, Basics of Questionnaire based surveys. Basics of Case control study (CCS) design, Selection bias in CCS, Analysis options in CCS, types of CCS – traditional, case cohort, nested case control. Advantages & disadvantages of Case Control Studies. Landmark Case control study examples.
20. Study Designs D - Cohort Studies & Registries	Cohort studies (CS) – basics, types of CS -prospective, retrospective & ambivalent CS, Follow up, Analysis options in CS, Advantages & disadvantages of Cohort Studies. Landmark Cohort study examples. Basics of Clinical Registries. Examples of published registries.

References: (Books)

1. Biostatistics - The Bare Essentials (4th Edn) by Geoffrey R Norman PhD & David L Streiner PhD.
2. Designing Clinical Research (4th Edn) Edited by Stephen B Hulley, Steven R Cummings, Warren S Browner, Deborah G Grady, Thomas B Newman.
3. Principles & Practice of Clinical Research (4th Edn) – Edited by John I Gallin, Frederick P Ognibene, Laura Lee Johnson.

Course Lead and Instructor

Dr. Manu Raj

Professor & Senior consultant

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Title of the course: “An Introduction to Indian Philosophy”

Course code: HSR 802

Credits : 1

Course Director : Mr Sivakumar V, Research Professor, Dept HSR

Course Description:

This course work has been designed to sensitize research scholars regarding the moral and ethical foundations enunciated by the philosophical traditions of Indian culture which in turn could be expected to have a positive bearing on the means, methods and output of their research work.

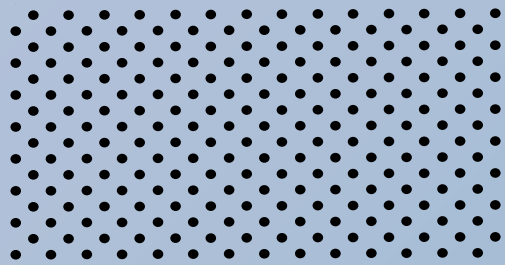
Syllabus:

1. Introduction to Philosophy
2. Western and Eastern Philosophical thoughts
3. Indian Philosophy
4. Religion and Philosophy
6. Role of Metaphors
7. Synthesis of Cultures
8. Evolution of newer linguistic, cultural stands and its political influence
9. Indian Culture: Standing the test of Time
10. Modern Sciences and Philosophy
11. Spirituality as the core of religious philosophy
12. Spirituality and Mind
13. Mechanism of accessing Intuition
14. Life and Teachings of noted saints of India
15. Harmonizing perceptions, joyful living and all-round contributor-ship.

References:

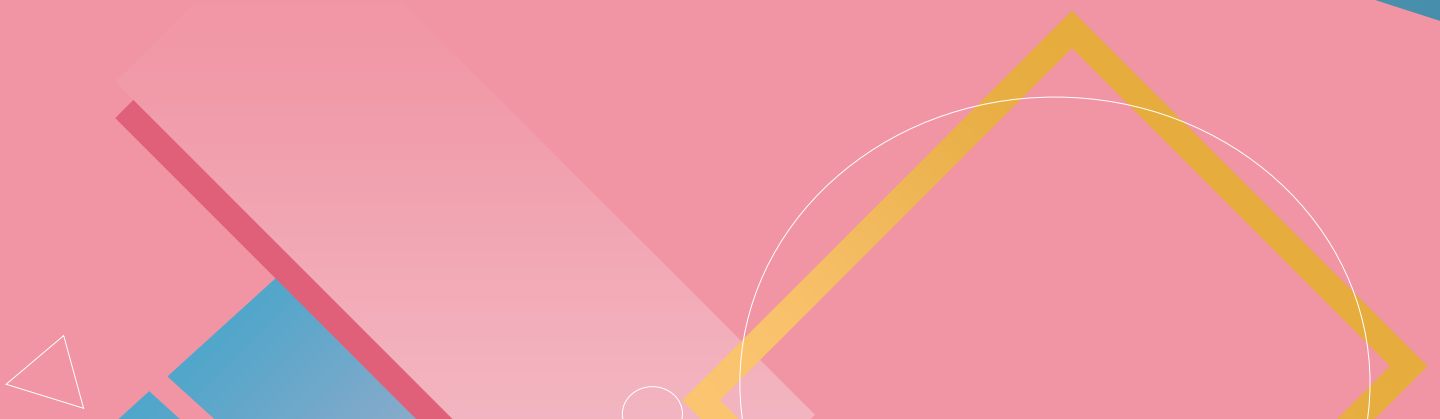
The Story of Philosophy- Will Durant
Philosophy of Religion- Dr. S. Radhakrishnan
Collected works of Swami Vivekananda
Self-Realization- Arthur Osborne
The Conscious Universe- Dr. Dean Radin
Entangled Minds- Dr. Dean Radin
Principal Upanishads
Bhagawad Gita.

The quality and credibility of research is dependent on the integrity of the researchers who have a significant social responsibility to abide by the standards prescribed for their professions and by their institutions and also to be guided by the applicable regulations and guidelines. Responsible Conduct of Research (RCR) involves components such as planning and conducting research, reviewing, and reporting research, responsible authorship, and publication of the research work. The research team should maintain highest standards to uphold the fundamental values of research. These principles must be followed for safeguarding the dignity, rights, safety, and well-being of research participants and for maintaining the research integrity



RESEARCH ETHICS AND INTEGRITY

AMRITA INSTITUTE OF MEDICAL SCIENCES



Course Title: Integrity in Research and Publication (IRP)

Course level: Two credit course

Course code: 807IRP

Eligibility: PhD Scholars

Overview

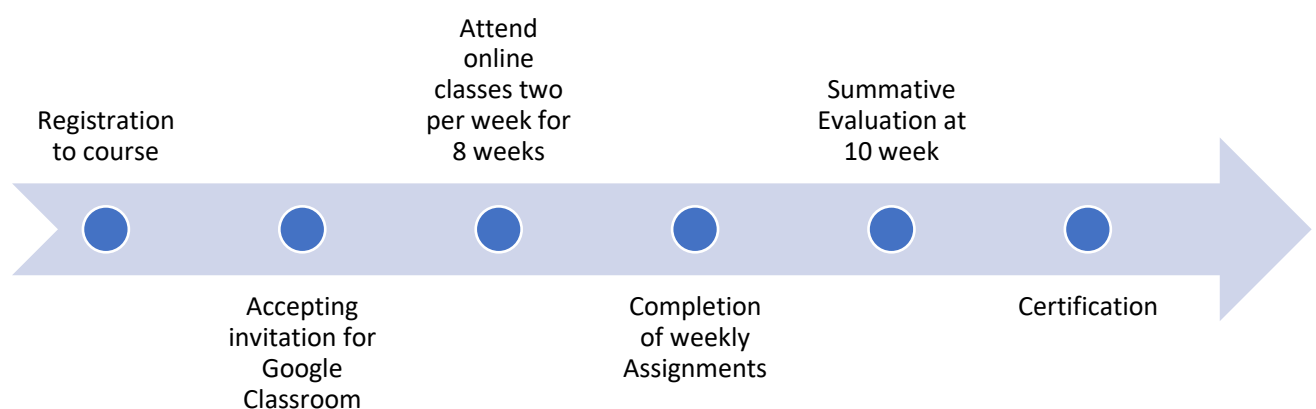
The IRP course is for 10 weeks. The course is offered online. There will be two classes per week for 1.30 hours duration for 8 weeks. There are ten modules in this course which included Lectures, Assignments and Evaluation

Days of the week: Wednesday and Saturday. **Time:** 2 pm to 3.30 pm

Each module will contain:

- A lecture class - video
 - Study materials for pre-reading and further reference
 - Assignments
 - Evaluation
 - Slides/handouts of the sessions (which will be uploaded after the lecture)
- The course is offered by Google Classroom so, it is recommended to use a Gmail account in case such features are not accessible through non-Gmail accounts.
 - Candidate progress will be monitored by Assignments submission, Evaluation of module and attendance

Evaluation: Each candidate must attend the online class, complete the evaluation and the assignments, will be eligible to write final evaluation at the tenth week. The online evaluation consists of the 100 MCQs questions for 3 hours of duration. Following successful completion of the final evaluation, the certificate will be issued



Course Description

Modules	Unit title	Description	Modes			Assignment Hours	Week
			Lectures Hours	Activity	Reading Hours		
IRP-01	Philosophy of Ethics	Introduction to Ethics and Morality, moral philosophies, and moral judgements.	1	Case Scenario	1	1	1
IRP-02	Science & Ethics	Science and Ethics	1		1	1	1
IRP-03	Historical Perspectives of Research Ethics	Historical cases studies of ethical violation in medical research	1	Video	1	2	1
IRP-04	Ethical Evaluation of Research	Ethical review procedures Informed consent process, Privacy and Confidentiality Justice Vulnerable populations Risk Benefit analysis, Standard of care Post trail Access Therapeutic misconception Guidelines	4	Case Scenario	2	1	1 & 2
IRP-05	Research Integrity	Introduction to Research Integrity Mentorship Whistle blowing Data integrity Conflict of Interest Authorship	2	Case Scenario	1	2	2 & 3
IRP-06	Scientific Misconduct	Historical classical cases studies of scientific misconduct in research Scientific Misconduct Fabrication Falsification Case studies	1	Case Scenario	1	1	3 & 4
IRP-07	Publication ethics	Best practices in Publications Publication metrics Databases, Plagiarism Publication misconduct Authorship process Statistical integrity, Negative results publications, Peer Review Spin Publications	4	Case Scenario	1	2	4 & 5
IRP-08	Special areas of research	Animal Research ethics, Public Health Ethics, Records based research, Social and Behavioural research	2	Case Scenario	1	1	6 & 7
IRP-09	Redressal in Scientific & Publication ethics	Integrity Practices, Clinical Trail Registry, Policy on research and publication ethics, Incidental Findings, Reporting Requirements in Biomedical Research, Cultural Competence in research	3	Problem Solving	1	1	7 & 8

Certification

Successful completion of course online certificate will be awarded from the Amrita Institute of Medical Sciences, Cochin

Course Lead and Instructor/Speaker

Chandrashekar Janakiram

Diplomate, American Board Dental Public Health
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PHILOSOPHY AND THEORETICAL FRAME WORK OF NURSING

Credits: 2
Hours:30

Course Code: ACN801

Course overview:

The aim of this course is to develop the philosophical basis of Nursing and the application of theoretical as well as conceptual frame works based on the philosophy of Nursing with special emphasis on human welfare through research.

Objectives:

Upon completion of this course, the research scholars will be able to:

1. Analyse the philosophical background that influence the nursing phenomenon
2. Describe strategies for concept and theory development
3. Evaluate theories used in nursing practices
4. Demonstrate skill in developing and testing conceptual models that has an impact on nursing science.
5. Examine interrelationship among science, theory, practice and research in nursing

Course Content:

1. Philosophy of nursing science (2 hrs)
2. Development of nursing knowledge (2 hrs)
 - Historical roots
 - Domains of nursing
 - Paradigms in nursing
 - Knowledge development
3. Paradigms that influence approach to nursing science development. (2 hrs)
4. Basics of nursing theories – A review
 - Importance of theories in nursing (1 hr)
 - Classification of theories in nursing (1 hr)
 - Strategies & issues in theory development (2 hrs)
5. Nursing theories – Analysis and Application
 - Analysis of selected nursing theories (8 hrs)
 - Application of nursing theories (12 hrs)