

Department of Public Health

Program: Master of Public Health (MPH)



First Capital University of Bangladesh

Chuadanga-7200, Bangladesh

Outcome-Based Education (OBE) Curriculum
Program: Master of Public Health (MPH)
Department of Public Health
First Capital University of Bangladesh
Chuadanga-7200, Bangladesh

Part A- Introduction



1. **Title of the Academic Program:** Master of Public Health (MPH)
2. **Name of the University:** First Capital University of Bangladesh
3. **The Vision of the University:** ‘Education for Excellence’ would be the preferred source of resources and professionals for the educational, financial, cultural, social, and political leadership, nationally and globally. To compete with the globalized world, Bangladesh needs to develop its human resources with the right skills and technical capabilities. Our vision is to provide the maximum facilities to our students to succeed in the area of our educational field as well as for success in the highly competitive world.
4. **The Mission of the University:** The mission of the University is to create and disseminate knowledge, provide top-quality education to the students, and share academic and intellectual research among FCUB faculty members. The prime objective of First Capital University is to make students into highly skilled professionals in their respective fields.
5. **Name of the Degree:** Master of Public Health
6. **Name of the Faculty Offering the Program:** Science and Engineering Technology
7. **Name of the Department Offering the Program:** Department of Public Health
8. **The Vision of the Program:**
The Department of Public Health's mission is to improve the health of our communities, including rural, underserved, and global populations, through education, research, outreach, service, and creative partnerships.

It will achieve this mission through:

V1	Collaborating with colleagues, communities, organizations, academic institutions, professionals, and citizens.
V2	Strengthening the capacity of health professionals to enhance the public's health through consultation, skill development, and education.
V3	Pursuing high-quality research to strengthen public health knowledge and interventions Supporting the provision of public health and health services.

9. The Mission of the Program:

The mission of the department will be realized only by attainment of the following goals through well-planned and coordinated programs:

M1	To provide continuing educational opportunities for public health and health services professionals to meet the needs of underserved, rural and global populations.
M2	To foster research activities that are consistent with the mission and vision of the institution and department and represent interdisciplinary and multi-method approaches
M3	To provide methodological expertise, collaboration, and education in the design, implementation, understanding, analysis, and application of basic, clinical, and translational research.

10. Description of the Program: This Program will be conducted on a Course & Credit based structure with 58 Courses to be dispensed in 180 Credits in total, completed in a minimum time span of 4 years.

11. Program Educational Objectives (PEO):

PEO 1	Discuss the history and philosophy of public health with core values, concepts, and functions
PEO 2	Demonstrate the ability to use public health data and Locate, use, evaluate and synthesize public health information
PEO 3	Apply concepts of population health and discuss the determinants of health
PEO 4	Explain human health and disease across the lifespan
PEO 5	Explain the fundamental characteristics and functions of the healthcare system
PEO 6	Discuss basic concepts of health policy, law, ethics, and economics
PEO 7	Communicate in oral, written, and electronic forms and through a variety of media to diverse populations
PEO 8	Advocate for the protection and promotion of the public's health at all levels of society

12. Program Learning Outcomes (PLO):

PLO 1	Assess needs capacity for health education programs
PLO 2	Plan health education programs
PLO 3	Implement health education programs
PLO 4	Conduct evaluation and research related to health education programs
PLO 5	Advocate for and support initiatives that promote the health of priority populations
PLO 6	Communicate to establish and maintain successful health education programs
PLO 7	Lead and manage health education programs
PLO 8	Demonstrate professional behavior and professionalism as a health education specialist

13. Generic Skills/Graduate Profile (Based on Need Assessment):

- Capability to connect with others; paying attention, talking, reading, composing, and non-verbal communication skills are sufficient to use and get complex details.
- Capability to identify, deconstruct, and solve intricate issues; with skills sufficient to get and examine relevant info, including numerical details.
- Usage logical reasoning in creating arguments. Consider choices and also different perspectives.
- Propose as well as implement alternative options. Research skills suffice to get details from varied resources.
- Capacity to utilize modern information technology for communication, study, and analysis.
- Certain skills suffice to meet a particular nationwide labor force requirement.
- Life abilities are sufficient to live and work in city and rural offices with worldwide colleagues.
- Knowledge of the requirements of ethical actions in the work environment.
- Dedication to independent knowing and the ability to self-teach and adjust to transforming in occupations and the work environment.
- Capability to deal with the constant modification of a swiftly advancing society.
- Positive self-image and the ability to accept as well as give constructive criticism.
- Comprehending gender equity issues and also the processes for attending to gender-based discrimination.
- Recognizing the fundamentals of management and handling individuals, tasks, time, and money.

- Team-working as well as dispute resolution abilities.
- Gratitude and valuing social and intellectual diversity and a capacity to operate in a multi-cultural or global environment.
- Ability to translate neighborhood problems as well as occasions from a worldwide viewpoint.
- Literacy in scientific research, technology, setting, economics, and regulation suffices to recognize national concerns.
- Understanding the demands of the general population in terms of wellness and education, including the influences of alcohol and other medications, physical violence, and sexually transmitted infections.
- Understanding the general populace's demands in terms of income upkeep and the requirements of sustainability in development. Recognizing the social origin of criminal offense and the processes for resolving it.
- Familiarity with citizenship's social and honest duties and the functions of depictive freedom.

14. Mapping/Alignment University's Mission Vs PEO:

MISSION STATEMENTS	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PEO 7	PEO 8
M1	3	3	3	3	3	3	2	2
M2	2	3	3	3	3	3	3	3
M3	2	3	3	3	3	2	2	2

**** Correlation: 3-High, 2-Medium, 1-Low**

15. Mapping/Alignment PEO Vs PLO:

PEO/PLO	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8
PEO 1	1	1	1	3	2	1	1	1
PEO 2	2	3	3	3	2	1	3	1
PEO 3	2	2	3	1	1	1	1	1
PEO 4	3	3	3	3	3	3	3	3
PEO 5	3	3	3	3	3	3	3	2
PEO 6	2	3	3	2	3	2	3	1
PEO 7	1	3	3	3	3	3	3	2
PEO 8	3	3	3	3	3	3	3	3

**** Correlation: 3-High, 2-Medium, 1-Low**

16. Evaluation by Letter, Grading and Ranking:

Numerical Grade	Letter Grade	Grade Point
90% -100%	A+, Golden	4.0 with distinction
80% -89%	A+	4.0
75% -79%	A	3.75
70% -74%	A-	3.50
65% -69%	B+	3.25
60% -64%	B	3.00
55% - 59%	B-	2.75
50% - 54%	C+	2.50
<50%	F	Failed
	I	Incomplete
	W	Withdrawn

Note: Absence from End-Course examination shall be considered as incomplete with the LG as "I".

17. Computation of Grades:

For computation of grades, guidelines provided by UGC will be followed.

18. Grade Improvement:

Promoted students earning a grade less than 2.50 in individual Course (s) shall be allowed to improve the grades on those particular courses.

- If a Candidate fails to qualify (clear 'F') in first attempt he/she shall can reappear in a next examination with only paying examination fees.
- If any Candidate fails to attend the required percentage of attendance (75%) he /she will get the chance to sit for the next examination with full course and examination fees.

19. Validity of Admission:

The admission in the Program will remain valid up to a period of 7 (seven) academic years. Re- admission may be allowed on application by the Candidate with compelling reasons to be decided by the Academic Committee of the Department.

20. ASSESSMENT PATTERN**CIE- Continuous Internal Evaluation (50 Marks)**

Bloom's Category Marks (out of 50)	Class Test (25)	Quizzes (5)	Assignment (5)	Practical (10)	Co-Curricular Activities (5)
Remember	5				
Understand		5			
Apply	10		5	5	5
Analyze				5	
Evaluate	5				
Create	5				

SEE- Semester End Examination (50 Marks)

Bloom's Category Marks (out of 50)	Test
Remember	10
Understand	10
Apply	10
Analyze	10
Evaluate	5
Create	5

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Part B- Program Curriculum



Curriculum Structure

- a) Duration of the program:
- MPH 1 Year 52 Credit
 - MPH 1.5 Year 70 Credit
 - MPH 2 Years 80 Credit

Course Code	Course Title	Credit Point
First Semester		
MPH-511	Introduction to Public Health	3
MPH-512	Introduction to Epidemiology	3
MPH-513	Introduction to Biostatistics	3
MPH-514	Epidemiology of Infectious Diseases	3
MPH-515	Demography and Public Health	3
MPH-516	Health Economics and Health Care Financing	3
MPH-517	Environmental Epidemiology	3
MPH-518	Monitoring and Evaluation: Public Health Context	3
		Subtotal-24
Second Semester		
MPH-519	Nutritional Epidemiology	3
MPH-520	Epidemiology of Chronic Disease	3
MPH-521	Health Policy and Planning	3
MPH-522	Maternal and Reproductive Health	3
MPH-523	Pediatrics' Nutrition and Health	3
MPH-524	Health Education and Promotion	3
MPH-525	Behavioral Health	3
MPH-526	Research Methodology	3
		Subtotal-24
Third Semester		
MPH Major in Epidemiology		
MPH-527	Applied Epidemiology	3
MPH-528	Injury Epidemiology and Prevention	3
MPH-529	Research Ethics and Integrity	3
MPH-530	Public Health Data Management and Analysis	3
MPH-531	Dissertation	10
MPH Major in Environmental Health Science		
MPH-527	Disaster Preparedness and Response of Public Health	3
MPH-528	Environmental Pollution and Waste Management	3
MPH-529	Environmental Health Impact and Health Impact Assessment	3
MPH-530	Public Health Data Management and Analysis	3
MPH-531	Dissertation	10
MPH Major in Community Medicine		
MPH-527	Introduction to Community Medicine	3
MPH-528	Public Health Microbiology and Immunology	3
MPH-529	Primary Health Care	3
MPH-530	Public Health Data Management and Analysis	3
MPH-531	Dissertation	10
MPH Major in Community Nutrition		
MPH-527	Food Security, Safety and Food Quality	3
MPH-528	Macro and Micro Nutrients	3
MPH-529	Applied Nutrition & Nutrition Related Indicators and Policy	3
MPH-530	Public Health Data Management and Analysis	3
MPH-531	Dissertation	10

	Total- 70 credit (18 Months)	
Fourth Semester		
MPH-537	Gender and Health	3
MPH-538	Public Health Gerontology	3
MPH-539	Legal and Ethical Aspects of Healthcare	4
	Total- 80 credit (24 Months)	

Course No: MPH-511

Course Title: Introduction to Public Health

Core/Optional: Core

No of Credit: 03

Detail contents:

Theory:

Fundamental Concepts of Public Health and Evolution of Public Health

Health, Theories of Health and Disease

Community Medicine: Community health, demographic trends in the community & common community health problems, cultural diversification in community; Community organization; community participation; community empowerment.

Primary Health Care: Concept, elements & principles of primary health care; Approaches to PHC; Health care delivery system and policy approach in Organization and practice of public health programs in Bangladesh; Major Public Health problems in Bangladesh and Neighboring Countries.

Public Health Policy in Bangladesh and Neighboring Countries: Policy, Health policy, Health planning, Programming, Managerial process for National Health Development; Health policy of Bangladesh; Public Health priorities in National health policy of Bangladesh.

Practical:

Field visit to a local area to study community and to a health complex to study primary health care delivery system and submission of report

Book recommended:

- Textbook of Community Medicine and Public Health. Current Edition. K M Rashid (MBBS), Mahmudur Rahman (MBBS), Sayeed Hyder (MBBS).

Course No: MPH-512

Course Title: Introduction to Epidemiology

Core/Optional: Core

No of Credit: 03

Detail contents:

Introduction to Epidemiology: Basic concept of epidemiology, descriptive epidemiology, analytic epidemiology, health, disease, morbidity and causality; Scope of Epidemiology; Key issues in epidemiology.

Types of Epidemiological Research: Experiments, Quasi experiments and observational studies; Study types in population health research: Randomized controlled trials, cohort study, case-control study, cross-sectional study, ecological study and before-after study, strengths and weaknesses of epidemiological study designs.

Measures: Calculation and interpretation of ratios, proportions, incidence rates, mortality rates, prevalence, and years of potential life lost; Calculation and interpretation of mean, median, mode, ranges, variance, standard deviation, and confidence interval; Relative Risk, odds ratios, relative protection and relative risk reduction, risk difference, number needed to treat, attributable risk, comparison of proportions from several samples, standard error of estimators, Test of hypothesis.

Books Recommended:

- Beaglehole, R. et al. (1993), Basic Epidemiology, WHO, Geneva.
- Fleiss, J. L. (1981), Statistical Methods for Rates and Proportions, John Wiley & Sons, New York.
- Greenberg, R. S. et al. (1992), Medical Epidemiology, Appleton & Large, Connecticut.
- Fleiss, J. L. (1981), Statistical Methods for Rates and Proportions, John Wiley & Sons, New York.
- Greenberg, R. S. et al. (1992), Medical Epidemiology, Appleton & Large, Connecticut.
- Last, J. M. (1995), A Dictionary of Epidemiology, Oxford University Press, New York.
- MacMohan, B. et al. (1987), Epidemiologic Methods, Little Brown & Co., Boston.

Course No: MPH-513

Course Title: Introduction to Biostatistics

Core/Optional: Core

No of Credit: 03

Detail contents:

Introduction: Definition, meaning of statistics and biostatistics, functions, uses, scopes and limitations, sources of data, population, sample, parameter, statistic.

Elements of statistics: Variable, data- their types, characteristics, and scales of measurements.

Data organization and management: Data cleaning, editing, sorting, grouping.

Data presentation: Array, constructions of frequency table- univariate, bivariate, multivariate; graphical representation for qualitative data and quantitative data.

Measures of univariate exploratory/descriptive analysis

Measures of location: Measures of Central Tendency - arithmetic mean, geometric mean, harmonic mean, median and mode; Other measures - percentiles, deciles, quartiles, quintiles. choosing appropriate measure.

Measures of Dispersion: Absolute measures - Range, Mean Deviation, Variance and Standard Deviation, Quartile Deviation, Inter quartile range; relative measure - Coefficient of variation (CV); choosing appropriate measure.

Shape of distribution: Raw and Corrected moments and their interrelationship, Skewness, Kurtosis, box-plot and modified box-plot, Lorenz curve.

Probability: Concept of Probability, Evolution of Probability, Probability types; Set and Set operations, Random Phenomena and Related Concepts, The Odds, Independence and Non-Independence of Events, Joint Events, Conditional Probability, Theorems on Probability. Introduction to Bayes' Theorem (concept and proof).

Probability Distributions: Random variable, Probability Function, Density Function, Probability Distribution, Continuous Probability Distribution, Expectation & Variance of random variables-conditional expectation.

Other Distributions: Binomial Distribution, Poisson distribution, Normal Distribution, Standard Normal

Regression and Correlation:

a. Correlation analysis:

Introduction: Concept, definitions, terms and terminologies, significance of the study of correlation, nature of relationship, Scatter diagram.

Methods of studying relationship: Karl Pearson's co-efficient of correlation (r), properties of correlation coefficient, interpretation of r , Probable error, conditions for using probable error, merits and limitations of ' r ', co-efficient of determination (r^2), correlation co-efficient between observed and estimated value, correlation ratio, measures of correlation ratio, intra-class correlation, bi-serial correlation.

Rank Correlation: Rank correlation coefficient, tied ranks, repeated ranks, and limits of rank correlation co-efficient.

Evaluating the correlation coefficient: Test of significance, t test, effect of sample size on significance of ' r ', precautions

b. Regression analysis

Introduction: Concept, definitions, terms and terminologies, difference between Correlation and Regression analysis.

Regression Estimates: The linear bivariate regression Model, assumptions, LSE of the regression coefficients, their properties and interpretation, regression equation and fitting of regression lines of y on x and x on y . Dealing with extreme values.

Books Recommended:

- An Introduction to the Theory of Statistics. G IJ Yule and M G Kendall. Universal Books Stall. New Delhi. 1999.
- Elementary Statistics. Fourth Edition. PG Hoel. John Wiley. New York. 1976.
- Introductory Statistics. Fifth Edition. T H Wonnacott and R J Wonnacott. John. Wiley. New York. 1990.
- Bio-Statistics: A Foundation for Analysis in the Health Science. Seventh Edition. W W Daniel. John Wiley & Sons. New York 2000.

Course No: MPH-514

Course Title: Epidemiology of Infectious Diseases

Core/Optional: Core

No of Credit: 03

Detail contents:

Introduction to infectious disease: Infection, Infectious agent, infectivity, pathogenicity, virulence, infectious disease, communicable disease, contamination, pollution, contagious disease, contagion, infestation, iatrogenic disease, nosocomial infection, opportunistic infection, enzootic, epornithic, epizootic.

Development of disease process: Infection chain, source, reservoir, types of reservoir, human reservoir, case, types of cases, carrier and its type, role of carrier in the epidemiology of communicable disease, mode of transmission, difference- carrier and vector; difference- carrier reservoir; air, vector, fomite borne diseases.

Natural history of disease: introduction; agent; mode of exit of organism from the reservoir, mode of entry; susceptible host; susceptible host, incubation period; epidemic; endemic; pandemic; germination time; eradication; monitoring; surveillance; quarantine; international quarantine; isolation- definition, purpose, type.

Introduction to Concepts in Transmission and Dynamics: Describe a basic compartmental model; Identify the parameters to calculate R_0 ; Explain the concept of and calculate an (epidemic threshold); Describe the effect of vaccination on the spreading of a disease in a population; Discuss the roles, outcomes and limits of mathematical modeling in public health and characteristics of infectious disease transmission that may limit their use.

Vaccine preventable diseases: Influenza vaccination; hepatitis; Intersection Between the Opioid and Hepatitis C Virus, Epidemics and Risk for Vertical Transmission of Hepatitis C Virus; HIV/AIDS- transmission, prevention and control, high risk group; tuberculosis- Overview of the natural history and epidemiology of tuberculosis (TB), Testing for TB; Influenza.

Books Recommended:

- Nelson, K. E., & Williams, C. M. (Eds.). (2014). Infectious disease epidemiology: theory and practice. Jones & Bartlett Publishers.
- Brachman, P. S., & Evans, A. S. (1998). Bacterial infections of humans. Plenum Medical.
- Palacios, G., & Oberste, M. S. (2005). Enteroviruses as agents of emerging infectious diseases. Journal of neurovirology, 11(5), 424-433.
- Magnus, M. (2008). Essentials of infectious disease epidemiology. Jones & Bartlett Learning.

Course No: MPH-515

Course Title: Demography and Public Health

Core/Optional: Core

No of Credit: 03

Detail contents:

Introduction to Demography: Demographic, social, and economic determinants of fertility, health, mortality and related demographic aspects; effects of population size, composition, and structure on social and economic conditions; demographic transition; aging and mortality; fertility, family planning, and reproductive health; urbanization; migration; family demography to include marriage, living arrangements, and family structure; population and environment; consequences of population growth for economic development; and the demographic future.

Methods of Demographic Analysis: Major demographic methods used in the study of population; standard procedures for the measurement of fertility, mortality, natural increase, migration, and nuptiality; compute demographic rates, construct life tables, and implement population projections; standardization, decomposition of differences, the analysis of fertility and nuptiality patterns, analysis invoking model life tables and stable population theory, and analysis of non-stable populations.

Advanced Methods of Demographic Analysis: Event history analysis (nonparametric, semi-parametric and parametric versions; continuous and discrete time versions; fixed and time-dependent covariate versions), life table techniques (single-decrement, multiple-decrement, and multi-state), decomposition analysis, age-period-cohort models, methods for analyzing multiple time trends (e.g., Lee-Carter model), Lexis map analysis, smoothing and non-parametric regression techniques, and mathematical models of population dynamics.

Mortality Measures: Introduction, Crude and Specific Rates, Standardized Rates Infant Mortality – Infant Mortality Rate, Neo-natal mortality rate, Post neonatal mortality, Peri-natal mortality, Foetal Death,. Morbidity: Prevalence and Incidence Rates, Maternal Mortality.

Fertility Measures: Introduction, Concepts, Types of Analysis: Period and Cohort Measures Crude and Specific Rates, Standardized Rates Coale's Fertility indices – Total Fertility Rate, Gross Reproduction Rates, Net Reproduction Rate, Replacement Index.

Books Recommended:

- Jaffe, A. J. (1960). Handbook of Statistical Methods for Demographers: Selected Problems in the Analysis of Census Data. US Government Printing Office.
- Srinivasan, K. (1998). Basic demographic techniques and applications. SAGE Publications Pvt. Limited.
- Barclay, G. W. (1958). Techniques of population analysis (No. HB851 B25).

Course No: MPH-516

Course Title: Health Economics and Health Care Financing

Core/Optional: Core

No of Credit: 03

Detail contents:

Theory:

Basic concepts of economics and Health economics

The economy and the environment, National resource economics

Accountings of natural assets; Analytical tools national resource, supply and demand; Health production

Financial allocation and consumption of care by individuals, family, community and nation

Allocation of resources to the structures; Time management

Economic evaluation: Importance and necessity of economic evaluation.

Cost analysis; Cost-effectiveness analysis, Cost-utility analysis and Cost-benefit analysis.

Economic burden of health problem: DALY, QALY, YLL.

Practical:

- Analysis and interpretation of Health economic data.

Books Recommended:

- Thomas E. Getzen (2012), Health Economics and Financing, 5th Edition, published by Wiley.
- Dr. Kesavan Sreekantan Nair, (2019), Health Economics and Financing, New Century Publications; None edition
- Salvatore, D. and Diulio, E.A., (2003), Principles of Economics, Schaim's Outline Series, McGraw-Hill.
- Dewett, K.K., (1999), Modern Economic Theory, S. Chandra & Company Ltd.
- Mankiw, N. and M. Taylor (2004), Principles of Economics, 3rd Edition, South Western.
- Finkler, S. A., Calabrese, T. D., & Smith, D. L. (2022). Financial Management for Public, Health, and not-for-profit organizations. CQ Press.

Course No: MPH-517

Course Title: Environmental Epidemiology

Core/Optional: Core

No of Credit: 03

Detail contents:

Introduction: Definition of environmental epidemiology; Types of Environmental Exposures; Contributions of Epidemiology to Environmental Health; Special Issues for the Study of Environmental Epidemiology; The Role of Public-Health Departments in Environmental-Epidemiology Research.

Environmental-Epidemiology Studies: Their Design and Conduct: Origin of epidemiology; Types of Studies in Environmental Epidemiology; descriptive studies- case report, surveillance system, ecological studies; analytic studies- case control, cohort, nested case control, cross sectional.

Exposure Assessment in Environmental Epidemiology: Concepts and Methods in Exposure Assessment; Exposure-Data Needs for Epidemiology Studies; Issues in Exposure Assessment; The Need for Improvement in Exposure Assessment; Air-Pollution Studies and Exposure Assessment; Exposure Assessment at Hazardous-Waste Sites; Indexes of Exposure.

Health outcomes of different pollutions: Respiratory outcomes; neurologic outcome; Reproductive and Developmental Outcomes; hepatic outcomes; renal outcomes; Biologic Markers in Environmental Epidemiology; Susceptible Populations.

Data Systems and Opportunities for Advances: Introduction; environmental data collection system; Bridging Environment and Health; Monitoring of Environmental Health Effects; Confidentiality and Needs for Personal Identifiers; Data Gaps, Resource Constraints, and Research Opportunities.

Books Recommended:

- National Academies of Sciences, Engineering, and Medicine. 1997. Environmental Epidemiology, Volume 2: Use of the Gray Literature and Other Data in Environmental Epidemiology. Washington, DC: The National Academies Press. <https://doi.org/10.17226/5804>.
- Berglund, B., Lindvall, T., & Schwela, D. H. (1999). World Health Organization Occupational and Environmental Health Team. Guidelines for community noise.
- Merrill, R. M. (2008). Environmental epidemiology: principles and methods. Jones & Bartlett Learning.

Course No: MPH-518

Course Title: Monitoring and Evaluation: Public Health Context

Core/Optional: Core

No of Credit: 03

Detail contents:

Basic concepts and theories of Monitoring and Evaluation; Program design and management; Basic Statistical Methods

Monitoring: Principles, Methods and Approaches; Program Evaluations; Monitoring and Evaluation Systems

Quantitative methods and tools in Monitoring and Evaluation; Qualitative methods and tools in Monitoring and Evaluation

Applied Management Information System; Monitoring and Evaluation Project and Placement

Evaluation Research Methods; Proposal development and grants proposal writing; Dissemination and Communication

Policy Evaluations; Economic Evaluations; Monitoring and Evaluation Seminar series

Books Recommended:

- Gopichandran, V., & Krishna, A. K. I. (2013). Monitoring 'monitoring' and evaluating 'evaluation': an ethical framework for monitoring and evaluation in public health. *Journal of medical ethics*, 39(1), 31-35.
- Bell, S., & Aggleton, P. (Eds.). (2016). *Monitoring and evaluation in health and social development: Interpretive and ethnographic perspectives*. Routledge.
- Negandhi, H., Negandhi, P., Tiwari, R., Sharma, A., Zodpey, S., Kulatilaka, H., & Tikyani, S. (2015). Developing core competencies for monitoring and evaluation tracks in South Asian MPH programs. *BMC Medical Education*, 15(1), 1-8.
- Freeman, M., & Funk, M. (2007). *Monitoring and evaluation of mental health policies and plans*. World Health Organization.
- Bao, J., Rodriguez, D. C., Paina, L., Ozawa, S., & Bennett, S. (2015). Monitoring and evaluating the transition of large-scale programs in global health. *Global Health: Science and Practice*, 3(4), 591-605.

Course No: MPH-519

Course Title: Nutritional Epidemiology

Core/Optional: Core

No of Credit: 03

Detail contents:

Food consumption of individuals- Dietary assessment methods: Prospective methods; Menu records; Estimated food records; Weighed food records; The duplicate portion technique; Advantages with prospective methods; Disadvantages with prospective methods.

Food consumption of individuals- Retrospective methods: hour and 48 hour recalls; Diet histories; Food frequency questionnaires; Assessment of intake in the distant past.

Calculation of nutrient intake from data on food intake: Level of output data- Mean consumption of a group, Mean and distribution of consumption in a group, The relative magnitude of the consumption of an individual (rank order), The absolute magnitude of the consumption of an individual, Number of days required to classify individuals' dietary intake.

The validation of dietary assessment: Relative validation; Comparison of the mean and median values; Regression and correlation; Classification into fractals; Bland-Altman analysis; Observation.

Biological markers for food intake: Energy; Protein; Sodium; Iodine, fluoride and chloride; Selenium; Potassium; Verification of the completeness of 24 hour urine collections; Fiber; Cadmium and lead; Vitamin C; Fat and carbohydrates; Fatty acids.

Books Recommended:

- Satija, A., Yu, E., Willett, W. C., & Hu, F. B. (2015). Understanding nutritional epidemiology and its role in policy. *Advances in nutrition*, 6(1), 5-18.
- Illner, A. K., Freisling, H., Boeing, H., Huybrechts, I., Crispim, S. P., & Slimani, N. (2012). Review and evaluation of innovative technologies for measuring diet in nutritional epidemiology. *International journal of epidemiology*, 41(4), 1187-1203.

Course No: MPH-520

Course Title: Epidemiology of Chronic Disease

Core/Optional: Core

No of Credit: 03

Detail contents:

Global Epidemiology of Chronic Diseases: The Epidemiologic Transition: Global Pandemic of Chronic Diseases; Increase in World Population; Aging of the World Population; Increasing Longevity (Life Expectancy); Gender Differences in Longevity; Aging and Disease; Aging of Human Cell Populations; Free Radical Theory of Aging; Telomere Shortening and Aging; Global Epidemiology of Disease Disability; Global Prevention of Chronic Diseases.

Global Epidemiology of Cardiovascular Disease: Introduction to Global Epidemiology of Cardiovascular Disease; Spectrum of Cardiovascular Disease; Declining Mortality from Cardiovascular Disease in Developed Countries; Epidemic of Congestive Heart Failure; Gender and Ethnic Differences in Cardiovascular Disease; Epidemiologic Transition of Cardiovascular Disease; prevention and risk Factors for Cardiovascular Disease.

Epidemiology of Stroke (Cerebral Infarction): Ischemic and Hemorrhagic Strokes; Vascular Network of the Brain; Global Mortality of Stroke; Decline in Stroke Mortality in Developed Nations; Racial Differences in Stroke Mortality; Risk Factors for Stroke; Prevention of Stroke.

Epidemiology of Hypertension: Clinical Definition of Hypertension; Global Epidemiology of Hypertension; Ecological Patterns of Hypertension; Ethnicity and Hypertension; Physiological Control of Blood Pressure; Essential Hypertension; Secondary Hypertension; Hypertension of Pregnancy (Pre-eclampsia); Risk Factors for Essential Hypertension; Prevention of Hypertension.

Global Epidemiology of Cancer: Biological Basis of Cancer; Evolution of Cancer; Somatic Mutation Theory of Cancer; Epigenetic Theory of Cancer; Global Cancer Mortality; Cancer Mortality in Developing Versus Developed Nations; Major Environmental Cancer Risk Factors; Global Cancer Prevention and Control.

Books Recommended:

- Remington, P. L., Brownson, R. C., & Wegner, M. V. (2010). Chronic disease epidemiology and control (No. Ed. 3). American public health association.
- Harris, R. E. (2019). Epidemiology of chronic disease: global perspectives. Jones & Bartlett Learning.
- Remington, P. L., Brownson, R. C., & Wegner, M. V. (2010). Chronic disease epidemiology and control (No. Ed. 3). American public health association.
- Remington, P. L., & Brownson, R. C. (2011). Fifty years of progress in chronic disease epidemiology and control.
- Lynch, J., & Smith, G. D. (2005). A life course approach to chronic disease epidemiology. Annual review of public health, 26(1), 1-35.

Course No: MPH-521

Course Title: Health Policy and Planning

Core/Optional: Core

No of Credit: 03

Detail contents:

Overview and Analysis of Health Systems: A Systems Perspective on Health Care Reform, Development and Structure of the Health Care System in Bangladesh, Analyzing Policy Options for Health System Improvement

Organization and Delivery of Care: Workforce, Primary Care, Hospitals

Sectors of the Health Care System: Pharmaceuticals: Health Care and Business, Long Term Care, Mental Health Care, Integrative Medicine, Safety Net Services

System Challenges: Disparities in Health Care Access and Outcomes, Health Care Quality and Efficiency, Economic Analysis and Health Care Costs,

Public Policy and Health Systems Development: Private Health Insurance, Health Care Reform, Public Health Insurance and the Uninsured, Implementing Health Care Reform: New Payment Systems and Population Management, Policy Making Process, Case Study Health Policy in Bangladesh: Mental Health Parity

Books Recommended:

- Abel-Smith, B. (2018). An introduction to health: policy, planning and financing. Routledge.
- Walt, G. (1994). Health policy: an introduction to process and power.
- Deber, R. B., & Mah, C. L. (Eds.). (2014). Case studies in Canadian health policy and management. University of Toronto press.
- Teitelbaum, J. B., & Wilensky, S. E. (2016). Essentials of health policy and law. Jones & Bartlett Publishers.
- Dummer, T. J. (2008). Health geography: supporting public health policy and planning. Cmaj, 178(9), 1177-1180.

Course No: MPH-522

Course Title: Maternal and Reproductive Health

Core/Optional: Core

No of Credit: 03

Detail contents:

Theory:

Reproductive health: Concept of reproductive health, components of reproductive health, reproductive health indicators, reproductive right, fertility, infertility, menopause.

Maternal & Child health (MCH): Concept of maternal health, MCH, objectives, components/elements of maternal health, maternity cycle, ovulation, fertilization, maternity care.

Reproductive system & pregnancy: Concepts of terms: reproductive organs, gametogenesis, oogenesis, ovulation & fertilization; fetus, age of the fetus, duration of pregnancy, ovulatory age, gestational age, weight gain during pregnancy, trimesters of pregnancy, estimation of fetal weight, criteria of normal pregnancy, high risk pregnancy.

Antenatal care (ANC): Definition, components of antenatal care, objective, nullipara, primipara, multipara, nulligravida, primigravida, multigravida, parturient, puerpera, antenatal visit, activities in first and subsequent antenatal visits, antenatal (prenatal) advice, values of antenatal care.

Intranatal care: Definition, aims of intranatal care, labour, normal labour, abnormal labour, date of onset of labour, place of delivery, requirements for aseptic delivery, domiciliary care, institutional care.

Post-natal care (PNC): Definition, aims of postnatal care, postnatal care for mother, postnatal advice, puerperium, duration of puerperium, lochia.

Neonatal care: Neonatal period, post natal period, concept of neonatal care, infant, live birth, still birth, preterm baby, term baby, post term baby, APGAR score, care of the new born, high risk baby, low birth weight baby.

Child growth: Child, growth, development, child growth, growth chart and its use, assessment of growth, early childhood development, child health problems.

Breast feeding: Definition, antenatal visit colostrum, composition and advantages of colostrum, exclusive breast feeding, infant and young child feeding, early initiation of breast feeding, composition of breast milk, daily requirement of milk for a full term normal baby, advantages and disadvantages of breast feeding, superiority of breast milk over cow's milk, artificial feeding, milk injury, weaning.

Indicators of maternal and child health care: Maternal mortality, perinatal mortality, neonatal mortality, post-neonatal mortality, infant mortality, maternal mortality rate, perinatal mortality rate, neonatal mortality rate, post-neonatal mortality rate, infant mortality rate, 1-4 year mortality rate, under 5 mortality rate, child survival rate.

Gender issue & gender aspects of reproductive health: Sex, gender, gender equality, gender equity, gender discrimination in female life cycle, reproductive health problems and gender issues, strategic responses for reproductive rights.

RH and MCH: Bangladesh context: Present status of reproductive health in Bangladesh, reproductive health strategy and goals, reproductive health programs in Bangladesh, MCH Programs in Bangladesh.

Practical:

- Calculation of gestational age and age of fetus/ovulatory/fertilization age.
- Calculation of maternal different morbidity rates, maternal mortality rates from survey data.
- Calculation of infant mortality rate, neonatal mortality rate, perinatal mortality rate, post-neonatal mortality rates from community based survey data and interpretation of respective rates.
- Calculation of under-5 mortality rate, child survival rate.
- Calculation of APGAR score from clinical data.
- Calculation of effectiveness of contraception.

Books Recommended:

- Park's Text Book of Preventive and Social Medicine- K. Park (21st edition)
- Text Book of Obstetrics- D.C. Dutta (6th edition)
- Text Book of Community Medicine and Public Health- KM Rashid, Mahmudur Rahman, Sayeed Hyder
- Essence of Pediatrics- Prof. MR Khan and Prof. M Ekhlasur Rahman (4th edition)
- Text Book of Public Health and Community Medicine- Rajvir Bhalwar. Armed Forces Medical College, Pune, India. 1st edition.

Course No: MPH-523

Course Title: Pediatrics' Nutrition and Health

Core/Optional: Core

No of Credit: 03

Detail contents:

Introduction: Growing well in a changing world; a changing world; Malnutrition – a triple burden; Surviving, but not thriving; A greater focus on food systems; Making food systems work for children; About this report Put children's nutrition first.

Child malnutrition today: Introduction; stunting; wasting; underweight; Where do wasted children live? Hidden hunger; overweight and obesity; Overweight and disadvantage; the economic impacts of children's malnutrition; How can agriculture better support nutrition? Role of food system.

Feeding a child for life: Vulnerability and opportunity (the first five years of life); Impact of maternal malnutrition and malnutrition in early childhood; power of breast feeding; the importance of first foods; the importance of complementary foods; School-age nutritional risks and concerns.

Malnutrition in a changing world: Hygiene and sanitation; Conceptual Framework of the Determinants of Maternal and Child Nutrition; Environmental enteric dysfunction; Intergenerational cycles of malnutrition; globalization; urbanization; Access to healthy food.

An agenda to put children's nutrition rights first: Empower families, children and young people to demand nutritious food; Drive food suppliers to do the right thing for children; Build healthy food environments for all children; Mobilize supportive systems to scale up nutrition results for all children; Collect, analyze and use good-quality data and evidence regularly to guide action and track progress.

Books Recommended:

- American Academy of Pediatrics Committee on Nutrition. (2014). Pediatric nutrition (pp. 123-139). R. E. Kleinman, & F. R. Greer (Eds.). Elk Grove Village, IL: American Academy of Pediatrics.
- Zitelli, B. J., McIntire, S. C., Nowalk, A. J., & Garrison, J. (Eds.). (2021). Zitelli and Davis' Atlas of Pediatric Physical Diagnosis, E-Book. Elsevier Health Sciences.
- VILLAVERDE, C. (2017). Neonatal and Pediatric Nutrition. Textbook of Veterinary Internal Medicine: Diseases of The Dog and The Cat.(Ettinger, SJ, E. C. Feldman, E. Côté), Eighth Edition. Elsevier, St. Louis, Missouri, 1834-1837.
- Kaplan, D. W., Merenstein, G. B., & Rosenberg, A. A. (1994). Handbook of Pediatrics. Prentice-Hall International.

Course No: MPH-524

Course Title: Health Education and Promotion

Core/Optional: Core

No of Credit: 03

Detail contents:

Introduction to health education: Concept, Philosophy, Strategy, Principle, Aims, Objectives and definition of health education; Principles and approaches of health education; Methods use in health education; Planning and management of health education; Operational plan of BHE.

Introduction to Health Promotion: Historical Background, Concept, Philosophy, Strategy, Scope, Principle, Aims, Objectives and definition of Health Promotion; Global development of health promotion, priority areas and approaches; How education is involved?

Communication, Method and Media: Definition, Principles, Scope, Types, Elements, Barriers of communication; Communication process; Methods and Medias of Communication; Advantages and limitations of methods and Medias.

Planning of Health Education: Concept and objectives of planning, Programs Components and Process, Budgeting and Indicators; Design and steps of program evaluation.

Concept of Training Technology: Definitions, Strategies, Methods, Principles and Conceptual Models of Training Process; Lesson Plan Components and Preparation; Teaching methods and appropriate methods of teaching.

Books Recommended:

- Galli, N. (1978). Foundations and principles of health education. John Wiley & Sons.
- Bedworth, D., & Bedworth, A. E. (2009). Dictionary of health education. Oxford university press.
- Ward, W. B. (1986). Advances in health education and promotion. Jai Pr.
- Windsor, R., Clark, N., Boyd, N. R., & Goodman, R. M. (2004). Evaluation of health promotion, health education, and diverse prevention programs.
- Pirrie, D., & Dalzell-Ward, A. J. (1966). A Textbook of Health Education. A Textbook of Health Education.

Course No: MPH-525

Course Title: Behavioral Health

Core/Optional: Core

No of Credit: 03

Detail contents:

Biological Bases of Behavior: Genetic Bases of psychiatric Disorders: Genetic studies, genetic origins of schizophrenia, genetic origins of affective (mood) disorder, genetic origins of personality characteristics and disorders, genetic origins of neuropsychiatric disorder, genetic origins of alcoholism; The Life cycle: Beginning of Life, Growth and Development: Pregnancy, Childbirth; Infancy: birth to 15 months 31, The toddler years: 15 months to 30 months, The preschool child: 30 months to 72 months, Latency or school age: 7 to 11 years (puberty), Adolescence: 11 to 20 years, Illness and death in childhood, Child abuse; Adulthood, Aging, and Death: Early adulthood: 20 to 40 years, Middle adulthood: 40 to 65 years, Late adulthood: 65 years and older, Death and dying.

Behavior of The Individual: Psychoanalytic Theory: Overview, Topographic theory of the mind, Dreams, Structural theory of the mind, Defense mechanisms, Psychoanalysis; Learning Theory and Behavior Medicine: classical conditioning, Operant conditioning, Application of the behavior techniques; Psychoactive Substance Dependence and Abuse: Overview, Caffeine, Nicotine, Alcohol, Opioid drugs, Sedatives, Amphetamines, cocaine, Marijuana, Hallucinogens; Sleep: Normal sleep, Sleep disorders.

Psychopathology: Schizophrenia, Mood Disorders, Anxiety Disorders, Cognitive Disorders, Other Psychiatric Disorders in Adults and in Children, Suicide.

Social Behavior:

The Family, Culture, and Illness: The family- overview, Demographics and current trends, Family system, Culture in the United States, Minority subcultures.

Human Sexuality and Human Aggression: Sexual development, Gonadal hormones and sexuality, The sexual response cycle, Sexual dysfunction, Paraphilia, Homosexuality, Common illness and sexuality, Spinal cord injuries and sexuality, Aging and sexuality, Drugs and sexuality, Aggression and control, Rape.

Emotional Reaction to Illness: Emotional responses, the hospitalized patient, the patient with AIDS, Stress and illness, Stress and life events.

Books Recommended:

- Prof. M. D. Hussain. Behavioural Science. 2nd Edition.
- Barbara Fadem. Behavioural Science. 2nd Edition.

Course No: MPH-526

Course Title: Research Methodology

Core/Optional: Core

No of Credit: 03

Detail contents:

Introduction of research methodology and steps of research: Introduction, Philosophy, theory and practices of research, Scope and areas of research, Generating ideas for research, Sequence of steps in a research work.

Research problem, hypothesis, objectives: Defining the research problem, Importance of research problem, Justification of research problem, Formulation of research questions and hypothesis, Formulation of research objectives.

Nature and types of variables: Operational definitions, how variables are measured, Developing scales and measurement.

Literature review and referencing: Introduction, Systematic reviews, Narrative and systematic reviews, Cochrane review

Development of research instrument: Principles of measurement, Personally administered questionnaire, Mail questionnaire, Guidelines for Interview/ questionnaire designs, Open ended versus closed questions, Overcoming instrument problems. Value of pre-testing

Data Collection and fieldwork: Introduction, Data collection methods, planning for data collection, Settings and sources for data collection, Interviewing: structured and unstructured interviews.

Data Collection and fieldwork-II: Face to face and telephone interviews, Focus Group Discussion (FGD), projecting technique for data collection, disadvantages of various data collection methods.

Qualitative and Quantitative research: Introduction, Qualitative versus quantitative research, Process of qualitative and quantitative research.

Qualitative and Quantitative research: Sampling techniques, Case study, merging qualitative and quantitative methodologies.

Research designs: General terms to describe studies, designing a study, Strengths and weaknesses of the study, Cross sectional studies, Case control studies, Cohort studies.

Experimental and quasi-experimental studies: True experimental designs. Quasi or semi experimental designs, Matching, Randomization, Generalizability of experiment, Factors affecting internal and external validity

Analyzing and interpreting epidemiological data

Validity: Content validity, Criterion-related validity, Construct validity, Reliability, Stability of measures, internal consistency of measures.

Ethics in Research: Informed Consent, Publication ethics.

Scientific Communication:

Introduction: Meaning and scope of scientific communication. Aims and purposes of publication, Process of scientific communication, Barriers to scientific communication,

publication, and information dissemination, what makes good writing? Writing fundamentals (word choice, sentence structure, and paragraph structure)

Planning for publication of original research: Aims and purposes of study—hypothesis being tested. Review and evaluation of previous work in field, Designing the study and planning analysis of results, Ethical considerations-institutional approval -and subject consent, carrying out the study, Anticipating needs for publication

Publication of scientific papers and the publication process: Completion of process of Research, Communication of results to other investigators, Problems of language and style, Where and how to publish? Authorship criteria, How to conduct literature reviews and undertake electronic literature search in Internet

Format/structure of an original manuscript: Title of paper, authors and their affiliations and degrees, and corresponding author. Abstract (structure).Introduction (how to write a good introduction), Methods and materials, Results, Discussion and conclusion, Acknowledgements, References

Preparation of manuscript: Planning the manuscript (and where should focus be?), Sections and subsections of manuscript, the title of paper (purpose, length and content, and suitability for indexing), Abstract writing techniques. Presentation (how to summarize the results and rewrite a results paragraph effectively, get to the main points, discuss various relevant articles that present data in different ways, topics to be considered in the discussion section, and write an effective discussion). Final review- before submission to a journal

Writing and the writing process: Composition (subdivisions, paragraphs, sentences, and methods of expression), Editing (language, grammar, presentation and clarity, logical progression, uniformity and consistency, errors and redundancies, and British and US English), References (needs for documentation; number; style; and use of reference-management software). Selection of a journal and submission of manuscript, (Instructions for authors; letter of submission, and writing the submission letter)

Review process and review of manuscript: Peer review process. Editorial decision-making (basis for judgment and communication of decisions to authors).Revision of manuscript (extent of changes needed; revision or more studies; rebuttal).Acceptance and publication: editing by journal; galley-proofs; correspondence. Rejection (basis for rejection; what is basis for appeal? methods of appeal; and seeking guidance of an editor), How to do a peer review and how to write a peer review.

Ethical and personal issues: Contributions of authors and conflicts of interest. Communication of results before publication, Redundant publication, Plagiarism, Authorship, ghostwriting, and reproducible research

Books Recommended:

- Kothari, C.R., (2004), Research Methodology: Methods and Techniques, New Age International (P) Limited, Publishers.
- Panneerselvam, R., (2004), Research Methodology, Prentice-Hall of India Private Limited.
- Bausell, R.B., (1991), Advanced research methodology: an annotated guide to sources, Scarecrow Press.

Course No: MPH-527

Course Title: Applied Epidemiology

Core/Optional: Core

No of Credit: 03

Detail contents:

Concepts and Methodological Approaches in Epidemiology: Basic Concepts, Descriptive Studies, Modern Epidemiologic Study Designs, Intervention Trials, Confounding and Interaction, Epidemiological Field Work in Population-Based Studies, Exposure Assessment, Design and Planning of Epidemiological Studies, Quality Control and Good Epidemiological Practice, Screening, Surveillance, Causation of epidemiology, Life-course epidemiology, Causal models, Investigating an outbreak.

Statistical Methods in Epidemiology: Sample Size Determination in Epidemiologic Studies, General Principles of Data Analysis: Continuous Co-variables in Epidemiological Studies, Regression Methods for Epidemiologic Analysis, Survival Analysis, Measurement Error, Missing Data, Meta-Analysis in Epidemiology, Geographical Epidemiology, Positive and Negative Predictive Values, False positive and false negative, Sensitivity, and Specificity, Validity and precision, internal and external validity, direction of bias, sources of bias, selection bias, measurement or information bias; Misclassification; Effects of misclassification error, controls of misclassification error, Determinants of Health Related State and Events, Systematic interpretation the results of epidemiological studies.

Books Recommended:

- Beaglehole, R. et al. (1993), Basic Epidemiology, WHO, Geneva.
- Fleiss, J. L. (1981), Statistical Methods for Rates and Proportions, John Wiley & Sons, New York.
- Greenberg, R. S. et al. (1992), Medical Epidemiology, Appleton & Large, Connecticut.
- Fleiss, J. L. (1981), Statistical Methods for Rates and Proportions, John Wiley & Sons, New York.
- Greenberg, R. S. et al. (1992), Medical Epidemiology, Appleton & Large, Connecticut.
- Last, J. M. (1995), A Dictionary of Epidemiology, Oxford University Press, New York.
- MacMohan, B. et al. (1987), Epidemiologic Methods, Little Brown & Co., Boston.

Course No: MPH-528

Course Title: Injury Epidemiology and Prevention

Core/Optional: Core

No of Credit: 03

Detail contents:

Injury and the Role of Epidemiology: Concept of injury and epidemiology; the epidemiological model: factors and phases of injury; injury agent; susceptibility to injury agent; vehicle and vectors; injury vs. disease

Energy characteristics and control strategy: concept of energy; mechanical energy; Chemical and thermal energy; electrical energy; asphyxiation; technical control strategies

Injury severity: Introduction; severity score; pediatric trauma score; Impairment and disability; proposed impairment and disability scale; psychological impairment; neurological impairment; pain impairment; disability scale

Injury statistics: Introduction; injury rates; relevance and irrelevance of rates; biased statistics; seat belt effectiveness rates

Prevention: National injury surveillance- general surveillance; risk factors surveillance; prevention oriented surveillance; strategy to control injury

Books Recommended:

- Robertson, L. S. (2015). Injury epidemiology. Lulu. com.
- Haddon Jr, W. (1980). Advances in the epidemiology of injuries as a basis for public policy. Public health reports, 95(5), 411.

Course No: MPH-529

Course Title: Research Ethics and Integrity

Core/Optional: Core

No of Credit: 03

Detail contents:

Introduction: concept of ethics in research; ethics during data collection; cooper and schindler guideline; general issues within research ethics; Guiding Principles; Scope; Overview of theories and methods in ethics and research ethics.

Research integrity: Underpinning the Values of Rigor and Integrity; Honesty; Rigor; Care and Respect; Human subject protections; the humane use and care of animals in research; Conflict of interest; Safety and health; Intellectual property.

Confirming to ethical, legal and professional obligation: Informed Consent; Consent and vulnerable participants; Consent in exceptional circumstances; Designing consent forms; Data protection and data security; Freedom of Information and the rights of the Data Subject; Disclosure and Barring Service; Health and Safety; Environmental impact.

Academic integrity: concept of integrity; Principles of integrity; Forms of Academic Misconduct; Further Support; Criteria and principles for good research practice; Meaning of scientific misconduct and fraud; Cases and procedures for establishing misconduct, preventions and sanctions.

Conducting an ethics review: Procedure for Ethics Review; Categories of Ethical Risk; Conducting an Ethics Review – the process; Research Ethics Review Check List.

Books Recommended:

- Barnbaum, DR, & Byron, M. (2001). Research Ethics: Text and Readings. Prentice Hall, New Jersey.
- Bulger, RE, Heitman, E, Reiser, SJ. (2002). The Ethical Dimensions of the Biological and Health Sciences. Cambridge University Press, New York.
- Macrina, FL. (2005). Scientific Integrity: Test and Cases in Responsible Conduct of Research. Third Edition. American Society for Microbiology Press, Washington, D.C.
- Shamoo, AE, Resnick, DB. (2002). Responsible Conduct of Research. Oxford University Press, New York.

Course No: MPH-530

Course Title: Public Health Data Management and Analysis

Core/Optional: Core

No of Credit: 03

Detail contains:

A. Data Management

Introduction: Concept, Definition, scopes and limitations.

Computer-aided data management: Data management software, Spreadsheet design, computer data entry, Data validation, Missing values, Data manipulation, Multiple-level data structures, Screen display, Data retrieval, Reporting, Documentation and archiving, Other types of data, Ensuring good data quality, Ethical considerations.

Management Softwares: Excel, Access, CSPro

Excel: Loading and setting up Excel, creating a properly formatted file; building a spreadsheet template, using labels, numbers and formulas; enter, delete and alter spreadsheet data, sorting a spreadsheet, prepare and print graphs, creating and using macros; locate, link, extract and combine data from multiple spreadsheets, using built-in statistical analysis features, manipulating matrices.

Access: An overview, creating a form using access, how to organize a database, Showing the: full menus and organizing the problem, operating tool menu, planning a new database, creating the data base template. Entry data using access.

CS Pro: Data dictionary, Data entry (including CAPI), Batch editing, Tabulation, Dissemination tools (TRS, Map Viewer) Data file management utilities, Product oriented, Hands on experience, Develop specifications for CS Pro applications, Develop prototype CSPro applications, Design overall data processing systems with emphasis on quality assurance - Data validation, Examples of various applications-Dealing with dates, Frequency tables, Exporting data.

Epi-Info: An overview, creating a form using epi-info, how to organize a database, operating tool menu, planning a new database, creating the data base template. Entry data using epi-info. Calculating sample size for different epidemiological studies using epi-info. Export and Import of data to different format.

B. Data Analysis

Background: Concept, Definition, scopes and limitations. Major statistical software and their advantages and disadvantages in particular disciplines. Datasets and importing and exporting of datasets from and various programs. Variables File formats

Competency on two major software as relevant to the discipline: SPSS, STATA.

SPSS: Introduction, data entry and public health data analysis.

STATA: Introduction, data entry and public health data analysis using STATA, univariate , bivariate and multivariate approach.

Books Recommended:

- Davis, N. A., & Shiland, B. J. (2015). *Statistics & Data Analytics for Health Data Management*. Elsevier Health Sciences.
- Reddy, C. K., & Aggarwal, C. C. (Eds.). (2015). *Healthcare data analytics (Vol. 36)*. CRC Press.
- Dey, N., Ashour, A. S., Fong, S. J., & Bhatt, C. (Eds.). (2018). *Healthcare data analytics and management*. Academic Press.
- Cromley, E. K., & McLafferty, S. L. (2011). *GIS and public health*. Guilford Press.
- Chen, D. G. (2015). *Innovative statistical methods for public health data*. J. Wilson (Ed.). Berlin: Springer.
- Ahmed, S. E. (2016). *Innovative Statistical Methods for Public Health Data*.
- Wager, K. A., Lee, F. W., & Glaser, J. P. (2021). *Health care information systems: a practical approach for health care management*. John Wiley & Sons.

Course No: MPH-531

Course Title: Dissertation

Core/Optional: Core

No of Credit: 10

Each individual student will have to conduct a research work. For this purpose the students will develop a research protocol containing title, introduction, background, justification, research question/hypothesis, objectives, methodology and the analytical techniques to be followed.

There will be theory classes on these prior to development of the protocol. The protocol developed will be presented by the students in presence of the faculty who will approve it after corrections, if necessary. By the end of the semester the research work will be submitted in the form of a dissertation.