(*Revised Syllabus based on CBCS, NEP 2020 and on the inputs from the Board of Studies*)

UNIVERSITY OF LUCKNOW

MASTERS IN PUBLIC HEALTH (MPH)

PROGRAMME BROCHURE

(Proposed to be implemented from July 2020)

Dr Giri Lal Gupta Institute of Public Health & Public Affairs

15 February 2021

CONTENTS

I. About the Institute

Dr. Giri Lal Gupta Institute of Public Health & Public Affairs is an Institute of repute, housed in its own building in the New Campus of the University of Lucknow. It is a state-of-art building established in 2008 by a generous contribution of our alumnus late Dr. Giri Lal Gupta who instituted twin Institutes through Vinod Gupta Charitable Foundation, New Delhi. The Institute has come forward to become a premier institution at the National level for training manpower in the field of Public Health where there is a Growing thrust by the Government of India.

Many prominent figures in the field from diverse sections of the society such as academicians, health care practitioners, and government professionals from national as well as international fraternity are closely associated with the Institute helping in the commitment to take the Institute forward.

This Institute has been created to fulfill following objectives:

- Develop public health manpower by providing post-graduate training facilities,
- Conduct research relating to various Public health problems in community,
- Provide support services in urban (slum) and rural areas,
- Support and guide various programmes at national level, and
- Act as a center for comprehensive, capacity building, training and awareness generation institution.

Currently, a prestigious Master of Public Health (MPH – 2 years/4 semesters) programme is being run at the institute. Students who have passed out from here are well placed across the country. Also, a few are serving abroad in the Public Health sector.

The Institute is having a very beautiful building with enough attractions. It has more than 10 big modern classrooms equipped with LCD projectors. It has faculty rooms and library. It also has a well-developed computer lab, an air-conditioned meeting room and an auditorium of a capacity of 100 persons.

II. Introduction to CBCS (Choice Based Credit System)

Choice Based Credit system (CBCS) is an internationally acknowledged system. The Choice Based Credit System not only offers opportunities and avenues to learn core subjects but also exploring additional avenues of learning beyond the core subjects for holistic development of an individual. The CBCS course structure comprises of the core and elective/minor or skill based content and the evaluation is based on the grading system, which is considered better than the conventional marks system. The grading system provides uniformity in evaluation and computation of the Cumulative Grade Points Average based on students' performance in examinations, which may help students to move across institutions of higher learning.

Definitions

1. 'Programme' means an entire course of study that comprises of its structure, course details and evaluation schemes designed to be taught and evaluated in an Institute/Department.

2. 'Course' is part of a Programme.

3. 'Programme Structure' means a list of Courses (Core and Elective) that make up a Programme, describing syllabus, credits, teaching hours, evaluation and examination schemes, minimum number of credits required for successful completion of the Programme prepared in conformity to University rules.

4. 'Core Course' is a particular Programme in which a student is admitted to, and which must be successfully completed to receive the degree. Core Course cannot be substituted by any other Course.

5. 'Elective Course' is an optional Course, wherein a student has to select one course from options available in that Semester. Each Elective has multiple papers within it, which cannot be substituted or changed. Once the student opts for an Elective, they would be required to study all the included papers across semesters.

6. 'Interdepartmental Course' is an elective course which is available for students of other faculty.

7. 'Intradepartmental Course' is an elective course which is available for students of other department of the same faculty (here Faculty of Arts).

8. 'Value added Courses; Credited and Non-Credited' are conducted by the department to complement the students' knowledge and skills in their field of study. The Courses offered

are chosen based on the current trends and relevance having holistic approach.

9. 'Credit' is value assigned to a Course which indicates the level of instruction; One hour lecture per week equals 1 credit, 2 hours practical class per week equals 1 credit.

10. 'SGPA' is Semester Grade Point Average calculated for individual semester.

11. 'CGPA' is Cumulative Grade Points Average calculated for all Courses completed by students at any point of time. CGPA is calculated each year for both the semesters clubbed together.

12. 'Grand CGPA' is calculated in last year of the Course by clubbing together of CGPA of two years, i.e., four semesters. Grand CGPA is being given in Transcript form. To benefit the student a formula for conversion of Grand CGPA into %age is given in the Transcript.

III. Master of Public Health (MPH) Programme Details

University of Lucknow

MPH Programme
Regulations 2020

1. Applicability

These regulations shall apply to the MPH programme from the session 2020-21.

2. Minimum Eligibility for Admission

A three/four- year Bachelor's degree or equivalent in:

- Medicine/AYUSH/Dentistry/Veterinary Sciences/Allied Health Sciences/Life Sciences

OR

- Statistics/Biostatistics/Demography/Population Studies/Nutrition/Social Work awarded by a University or Institute established as per law and recognized as equivalent by this University with minimum **50 percentage*** marks or equivalent grade, shall constitute the minimum requirement for admission to the MPH programme.

  *** Please see University of Lucknow PG Admission Guidelines – (Section 2.1.1.4)**

  Demonstrated work experience in healthcare-related field is highly desirable.

3. Programme Objectives

MPH programme prepares the students to strive for and be able to meet the need of attaining a general well-being for populations and individuals, and not just focus on preventing morbidity and mortality. The MPH Programme objectives are as follows:

- Plan and implement effective health education programmes.
- Analyze and respond to social, political, and behavioral determinants of health.
- Effectively communicate, generate and utilize new and available data and information for development of evidence-based public health interventions.
- Translate available evidence into effective public health policies and ensure their seamless implementation.
- Develop effective strategies for health risk identification and control.

- Critically analyze existing public health policies and practices and recommend context-specific changes.
- Serve as health education resource persons to communicate and advocate for health.

4. Programme Outcomes

Upon successful completion of programme, students will be prepared to:

- Develop and demonstrate competency in different public health policy issues using principles from 5 core disciplines of public health i.e., Epidemiology, Biostatistics, Social and Behavioral Sciences, Environmental Health and, Health Policy and Management.
- Work in socially, economically and professionally diverse populations in existing health systems.
- Use epidemiologic methods to analyze patterns of disease spread and discuss application to control.
- Apply contemporary ideas to influence programme organization, management and problem solving in public health domain.
- Assess social and cultural practices impacting health and their impacts on access to health services.
- Critically conduct situational analyses and develop action plans for relevant public health issues.
- Work for national Ministry of Health, Non-government organizations (national/international), Research institutes, Academic institutes, etc.
- Adhere to standards for ethical practice and research based on personal values, institutional mandates, and the Code of Ethics for the Health Education Profession, in order to apply them to field of public health and community health education.

5. Specific Programme Outcomes

Upon successful completion of programme, a well-trained and competent public health workforce ready to serve the emergent needs of the national as well as the global community would graduate from the Institute.

6. Course Structure

The course structure of the MPH programme shall be as under:

MPH Programme is designed to be a two years' Programme. Students would have the option of exiting after successful completion of first year of the programme, with a Diploma Degree in Public Health. To earn a Diploma Degree, a student would need to successfully complete 48 credits of First Year of the Programme. The 2-year full-time MPH Programme shall be

the preferred option as it provides the full range of holistic public health education including Internship and Master Thesis (Dissertation). A student is required to complete 96 credits for the completion of MPH Programme and the award of Masters Degree in Public Health.

Year	Semester	Internship Report + Objective Structured Clinical Examination (OSCE)	Master Thesis (Dissertation)	Credits
First Year	I	-	-	**24**
	II	-	-	**24**
Optional Exit Point 1 with a Diploma Degree in Public Health				**48**
Second Year	III	**Yes**	-	**24**
	IV	-	**Yes**	**24**
Preferred and Final Exit Point 2 with a Masters Degree in Public Health				**96**

Course Credit Scheme

Type of Course		Semester				Total Course Credits
		I	II	III	IV	
Core (Theory+ Internship+ Dissertation)	**Papers**	5	6	3	2	
	Credits	16T + 4L = **20**	20T + 4L **= 24**	8T + 4I **= 12**	4T + 8D **= 12**	
Credit/ Non-Credit Value Added	**Papers**	1	1	-	-	
	Credits	4T **= 4**	-	-	-	
Elective	**Papers**	-	-	2	2	
	Credits	-	-	8T **= 08**	8T **= 08**	
Inter-/ Intra-departmental	**Papers**	-	-	1	1	
	Credits	-	-	4T **= 4**	4T **= 4**	
Total Credits		**24**	**24**	**24**	**24**	**96**

- For each Core and Elective Course (worth 4 Credits each), there will be 4 hours of theory

teaching per week. For Lab (worth 1 Credit), there will be 2 hours of Lab work per week. Therefore, for 4 Credits Lab, there will be 8 hours of Lab work every week.

- Internship and Dissertation will be of 4 and 8 Credits, respectively.
- Electives will be of 4 Credits.
- A Credited Value Added Course (worth 4 Credits) and Non-Credited Value Added Course are offered in Semester I and II, respectively.
- Inter- and Intradepartmental Courses will be of 4 credits each.
- **Codes:** T, L, I, or D defines as Theory, Lab, Internship (Includes Report + OSCE), or Dissertation (Master Thesis), respectively.

Distribution Scheme of Credits

SEMESTER	I	II	III	IV
CORE COURSES				
CREDITED VALUE ADDED COURSE				
NON-CREDITED VALUE ADDED COURSE				
INTERNSHIP (REPORT + OSCE)				
ELECTIVES				
DISSERTATION				
INTRA-/ INTER- DEPARTMENTAL COURSE				
MOOCs				

Masters in Public Health (MPH) Programme Summary

Course No.	Name of the Course	Credits	Remark on Course
	Semester I		
PHCC-101	Introduction to Public Health	04	Core (Theory)
PHCC-102	Biological Clocks, Health and Diseases	04	Core (Theory)
PHCC-103	Public Health Nutrition	04	Core (Theory)
PHCC-104	Social and Behavioral Sciences in Health	04	Core (Theory)
PHCC-105	Public Health Activities/Lab 1	04	Core (Lab)
PHVC-101	Human Physiology and Medical Terminology	04	Value added (Credited) (Theory)
	Semester Total	24	
	Semester II		
PHCC-201	Biostatistics and Research Methods	04	Core (Theory)
PHCC-202	Preventive and Curative Nutrition	04	Core (Theory)
PHCC-203	Health Policy and Management	04	Core (Theory)
PHCC-204	Public Health in Disasters and Outbreaks	04	Core (Theory)
PHCC-205	Demography and Population Studies	04	Core (Theory)
PHCC-206	Public Health Activities/Lab 2	04	Core (Lab)
PHVNC-201	Ancient Indian Systems of Health	00	Value added (Non-Credited) (Theory)
	Semester Total	24	
	Semester III		
PHCC-301	Epidemiology	04	Core (Theory)
PHCC-302	Communicable & Non-Communicable Diseases	04	Core/ MOOC (Theory)
PHEL-301A	Advanced Epidemiology	04	Elective (Theory)
PHEL-301B	Hospital Management		
PHEL-301C	Introduction to RMNCH+A		
PHEL-302A	Disease Screening in Public Health	04	Elective (Theory)
PHEL-302B	Program Planning and Evaluation		
PHEL-302C	Maternal Health		
PHIN-301	Summer Internship and Project Report	04	Summer Internship (Field)
PHIER-301	Public Health Ethics and Laws	04	Interdepartmental (Theory)
	Semester Total	24	
	Semester IV		
PHCC-401	Environmental and Occupational Health	04	Core (Theory)
PHEL-401A	Social Epidemiology	04	Elective (Theory)
PHEL-401B	Essentials of Health Economics		
PHEL-401C	Gender Issues and Health		
PHEL-402A	Information Technology in Public Health	04	Elective (Theory)
PHEL-402B	Communication and Training in Health		
PHEL-402C	Child and Adolescent Health		
PHMT-401	Master Thesis and Viva-Voce	08	Master Thesis (Field)
PHIRA-401	Mental Health	04	Intradepartmental (Theory)
	Semester Total	24	
	GRAND TOTAL	96	

PH – Public Health; PHCC – Core Course; PHVC – Value added course (Credited); PHVNC – Value added course (Non Credited); PHEL – Elective; PHIER – Interdepartmental Course; PHIRA – Intradepartmental Course

Electives:
PHEL-A: Advanced Epidemiology
PHEL-B: Health System Management
PHEL-C: Reproductive, Maternal, Newborn, Child, and Adolescent health (RMNCH+A)

Value Added Course Scheme

Semester	Course Code	Value Added Course Name		Credits	Lectures
		Credited	Non-Credited		
I	PHVC101	Human Physiology and Medical Terminology	-	4	60
II	PHVNC201	-	Ancient Indian Systems of Health	-	60
TOTAL				4	120

Elective Course Scheme

ELECTIVES (Any one to be chosen between PHEL-A, PHEL-B, and PHEL-C). If a student chooses PHEL-A, he/she co-opts for PHEL-301A, PHEL-302A courses in Semester III and PHEL-401A, PHEL-402A papers in Semester IV. Similarly, if a student chooses PHEL-B, he/she co-opts for PHEL-301B, PHEL-302B, PHEL-401A, PHEL-402A courses in Semester III and IV. Same holds true for PHEL-C.

Semester	Course Code		Course Name	Credits	Lectures
III	PHEL-A (301A and 302A opted)	PHEL-301A	Advanced Epidemiology	4	60
		PHEL-302A	Disease Screening in Public Health	4	60
	PHEL-B (301B and 302B opted)	PHEL-301B	Hospital Management	4	60
		PHEL-302B	Programme Planning and Evaluation	4	60
	PHEL-C (301C and 302C opted)	PHEL-301C	Introduction to RMNCH+A	4	60
		PHEL-302C	Maternal Health	4	60
IV	PHEL-A (401A and 402A opted)	PHEL-401A	Social epidemiology	4	60
		PHEL-402A	Information Technology in Public Health	4	60
	PHEL-B (401B and 402B opted)	PHEL-401B	Essentials of Heath Economics	4	60
		PHEL-402B	Communication and Training in Health	4	60
	PHEL-C (401C and 402C opted)	PHEL-401C	Gender Issues and Health	4	60
		PHEL-402C	Child and Adolescent Health	4	60

MOOC Course Sites

The link for the given MOOC electives is:

- https://www.swayam.gov.in
- https://www.udemy.com/
- CDC
- Doane University/EdX
- Duke University/Coursera
- Global Health Learning Center

Internship

After Semester Examination of Semester II, a Two months' internship will be undertaken by all the students with an aim to integrate learning and practice in a hospital. This can be undertaken at governmental or non-governmental organizations or programme management units. The internship shall include the role and support of the student in assessing, monitoring, conducting surveillance of health problems/services; research on health problems; developing and/or implementing policies and intervention strategies to meet health needs. Overall, it shall contribute to the organization, and shall help in understanding health management and coordination and gaining personal confidence and leadership experience. After the completion of 2 months of internship, students will be expected to work on all the data collected, analyze, interpret and present it in the form of an Internship Report on the health programme/challenge dealt with, and the solution proposed or implemented, at the end of Semester III.

The Internship is worth 8 Credits and will be evaluated in two stages.

Stage I: Includes the OSCE Evaluation done by the hospital during the Internship period **(worth 4 credits).**

Stage II: This shall be done at the end of Semester III wherein the student is required to submit 2 copies of the Internship Report at the time of Examination, one of which shall be sent to the Hospital/Institution where the student carried out his/her Internship. The Internship Report shall carry the **Internship Completion Letter*** obtained from the said hospital/institution. The Evaluation Committee shall consist of an External Examiner appointed by the BOS, and the Coordinator or his/her nominee as the Internal Examiner. The student will present his/her work to this 2-member Evaluation Committee which will then issue a 'Grade' **(worth 4 credits).**

***The format of the Internship Completion Letter is mentioned on the next page.**

Format of the Internship Completion Letter

Internship Completion Letter

Name and Logo of the Hospital

Date: ----------

The Coordinator
Dr. Giri Lal Gupta Institute of Public Health and Public Affairs
University of Lucknow
Lucknow 226031

Subject: Internship Completion Certificate

(Name of the Hospital)---------- certifies that [Name of the Student----------], an MPH 2nd Semester student from Dr. Giri Lal Gupta Institute of Public Health and Public Affairs, University of Lucknow, successfully completed the internship programme from (Start date---- ------) to (End date----------) at our institution.

During this time, [Name of the Student----------] was assigned (description of the type of tasks that were assigned----------). He/she acquired knowledge/expertise/skills in the (description of the field/area----------). The student was engaged in /associated with/completed the following (Name of the Project/s----------).

As a part of the curriculum requirement, the student was assessed making use of the Objective Structured Clinical Examination (OSCE) and thereby has been assigned the following OSCE Score of (mention the score ----------) based on his/her performance.

In addition, [Name of the Student] was assessed for his/her professional traits during the internship period and whether he/she managed to complete all assigned tasks as requested. Accordingly, the student performance has been assigned to one of the following categories: Excellent/Satisfactory/Poor.

Sincerely,

Name and Signature of Internship Mentor

Official Seal of the Department/Hospital

Master Thesis (Dissertation)

MPHC402A Epidemiology
MPHC402B Biostatistics
MPHC403C Biological Clock and Human Health
MPHC403D Health System Management
MPHC403E Health Programme, Policy and Planning
MPHC403F Reproductive and Maternal Health
MPHC403G Public Health Nutrition
MPHC403H Health Economics and Financing

Allotment and Evaluation of Dissertation will be done in Semester III and Semester IV, respectively.
The student will submit Dissertation preferably supported by short publications. The Dissertation will be evaluated at the end of Semester IV in two stages. **The Dissertation is of 8 Credits.**

Stage I: The Evaluation Committee will consist of Supervisor, one Senior Faculty Member and the Coordinator. After evaluation, this three member committee will provide 'Grade' which will cover 70% of the total marks.

Stage II: The student will present his/her work to the External Examiner appointed by the BOS and will cover 30% of the total marks.

Assessment of Students' Performance and Scheme of Examinations:

1. The medium of instruction and examination shall be English.
2. Assessment of Students' performance shall consist of two components:
(i) Internal Assessment (Mid Semester)
(ii) End Semester Examination
Timing for these examinations shall be decided as per the Academic Calendar notified by the University of Lucknow.

A. The break-up of marks for credit course examinations will be:

Assessment Type	Theory Course (Distribution of Marks) 4 Credits
Internal Assessment	
Examinations	15
Assignment/Seminar/Presentation	10
Attendance	05
External Assessment	
End Semester Examination	70
Total Marks	100

B. Each Four Credit Lab Course shall be evaluated at the End Semester Examination for a total of 100 marks.

C. The question papers will comprise of MCQs, short, long and essay type questions.

D. Examinations for Courses shall be conducted only in the respective Odd and Even Semesters as per the Scheme of Examinations. Regular as well as Ex-students shall be permitted to appear/reappear/improve in Courses of odd Semesters only at the end of Odd Semesters and Courses of Even Semesters only at the end of Even Semesters.

Guidelines for the Award of Internal Assessment Marks in MPH Programme

Internal Assessment will be broadly based on attendance in Theory and Lab (5 marks), assignments, seminars, presentations, MCQs, quizzes and tests in the theory component (25 marks). These criteria are tentative and could be modified based on guidelines approved by the academic council.

Attendance Requirement

No student shall be considered to have pursued a regular course of study unless he/she is certified by the Coordinator of the Dr Giri Lal Gupta Institute of Public Health and Public Affairs, University of Lucknow, to have attended 75% of the total number of theory and lab classes conducted in each semester, during his/her course of study.

Conversion of Marks into Grades

Criteria	Rules
Pass Percentage and Promotion	As per the Rules of University of Lucknow
Part I to Part II Progression	
Conversion of Marks to Grades	
Span Period	
Grade Points	As per University Examination Rules
CGPA Calculation	
SGPA Calculation	
Grand SGPA Calculation	
Conversion of Grand CGPA Into Marks	As Notified by Competent Authority the formula is: Percentage of Marks = CGPA (based on all 4 Semesters) x 9.5
Division of Degree In Classes	As Notified in Examination Policy

Semester I

SEMESTER 1

PHCC-101: Introduction to Public Health

Total Credits: 04 **Teaching Hours: 60**

Course Objectives:

The aim of this course is to enable students to:

- To familiarize students with what is public health, causation, prevention, social determinants of health, health systems and health policy.
- To provide knowledge base for health equity, environments and health as well as public health action.

Learning Outcomes:

After the completion of the course, the student shall be able to:

- Develop an understanding of public health, policies and laws
- Acquire knowledge about the methods of public health approaches
- Comprehend the practice of public health in real world

Unit-1: Foundations of Public Health *12*

- Development of the Discipline of Public Health *03*
  - Scope and Concerns of Public Health
  - History of Public Health in Developed Countries
  - Public Health in Low and Middle Income Countries
- Determinants of Health and Disease *03*
  - Behavioral Determinants of Health and Disease
  - Genomics and Public Health
  - Infectious Diseases
- Public Health Policies *03*
  - Overview of Policies and Strategies
  - Public Health Policy in Developed Countries
  - Health Policy in Developing Countries
- Public Health Law and Ethics *03*
  - Right to the Highest Attainable Standard of Health
  - Comparative National Public Health Legislation

Unit-2: Public Health Scenario *12*

- Maternal, Infant and Child Health *03*
  - Maternal Health
  - Infant Health
  - Child Health
- Adolescents, Young Adults and Older Adults *03*
  - Different Health Concerns of the Various Age Groups
  - Adolescents and Young Adults
  - Older Adults
- Elders *03*
  - Introduction and Definitions
  - Myths Surrounding Aging
  - Demography of Aging
- Public Mental Health *03*
  - Mental Illness
  - Mental Health Care

Unit-3: The Methods of Public Health *12*

- Information Systems and Sources of Intelligence *03*
  - Information Systems in Support of Public Health
  - Information Systems and Community Diagnosis
  - Web-Based Public Health Information Dissemination
- Epidemiological and Bio-statistical Approaches *03*
  - Epidemiology – The Foundation of Public Health
  - Clinical Epidemiology
  - Statistical Methods
- Social Science Techniques *03*
  - Sociology and Psychology in Public Health
  - Demography and Public Health
  - Health Promotion and Health Education
- Environmental and Occupational Health Sciences *03*
  - Environmental Issues in Public Health
  - Occupational Issues in Public Health

Unit-4: Healthcare Delivery *12*

- Healthcare System – Structure *06*
  - Introduction to Healthcare System

- A Brief History of Healthcare Delivery
- Spectrum of Healthcare Delivery
- Types of Healthcare Providers
- Healthcare Facilities and Their Accreditation

- Healthcare System – Function *06*
  - Overview of the Functions of the Healthcare System
  - Gaining Access to and Paying for Healthcare
  - Health Insurance
  - Health Insurance Provided by the Government
  - Supplemental Health Insurance

Unit-5: Practice of Public Health *12*

- Major Health Problems *03*
  - Gene-Environment Interactions and Public Health
  - Dental Public Health
- Prevention and Control of Public Health Hazards *03*
  - Injury Prevention and Control
  - Interpersonal Violence Prevention
- Public Health Needs of Population Groups *03*
  - Changing Family
  - Women, Men, and Health
  - People With Disabilities
- Public Health Functions *03*
  - Reducing Health Inequalities in Developing Countries
  - Population Screening and Public Health

Suggested Readings:

1. Bernard J Turnock – Public Health: What it is and how it works, 6th Edition, Jones and Bartlett Learning (2015).
2. Detels et al – Oxford Textbook of Public Health, 5th Ed., Oxford University Press (2011).
3. K Park – Park's Textbook of Preventive and Social Medicine, 21st Edition, Banarsidas Bhanot Publishers (2011).
4. Mary-Jane Schneider – Introduction to Public Health, 3rd Edition, Jones and Bartlett Learning (2011).
5. Gleason BL and Katherine Hunting - Essential Case Studies in Public Health: Putting Public Health into Practice, 1st Edition.
6. Hamal et al – Social Determinants of Maternal Health, *Public Health Reviews.*

7. Altin et al – Evolution of Health Literacy Assessment Tools: A Systematic Review, *BMC Public Health.*
8. Karami et al – Public Health Threats in Mass Gatherings: A Systematic Review, *Disaster Med Public Health Prep,* 2019.
9. Kovats and Hajat – Heat Stress and Public Health: A Critical Review, Annu Rev Public Health, 2008; 29.
10. Jang et al – Environmental Escherichia Coli: Ecology and Public Health Implications, *J Appl Microbiol,* 2017; 123 (3).

SEMESTER 1

PHCC-102: Biological Clocks, Health and Diseases

Total Credits: 04 **Teaching Hours: 60**

Course objectives:

The aim of this course is to enable students to:

- Understand importance of internal timing in regulation of daily and seasonal processes in organisms and impact of rhythmic geophysical environment on the endogenous rhythms
- Incorporate the study of daily rhythmicity into their biological studies, particularly as it relates to behaviour, physiology and medicine
- Understand how circadian rhythms regulate different physiological processes across lifespan
- Forge alliances with scientists working in basic as well as clinical aspects of circadian biology
- Develop cross-disciplinary approaches through circadian biology research
- Produce and disseminate materials for education and scientific advocacy on circadian biology, a topic of intrinsic interest and broad societal relevance.

Learning Outcomes:

After successful completion of this course, the students should be capable of:

- Conceptualizing how species profitably inhabit in the temporal environment and space out their activities at different times of the day and seasons.
- Understanding about molecules, cells, and systems of biological timing systems
- Studying and analysing the scientific literature
- Clock alignment and misalignment with the environment and its consequences
- Sleep physiology and related disorders
- Time dependent treatment interventions to prevent and treat clock disruption and related diseases
- Interpreting the cause and effect of lifestyle disorders
- Contributing to public understanding of biological timing.

Unit I: Biological clocks, rhythms and Behaviour *12*

- Milestones in clock research, Chronobiology in 21st century 02
- General concepts, types: ultradian, tidal/ lunar, circadian and circannual 02
- Rhythm properties: entrainment, free run, phase shift and phase response curves 03
- Circadian rhythms across life history stages (infancy to childhood to adolescence to adulthood to older age) 03
- Maternal and fetal rhythms 02

Unit II: Photoperiodism, anatomy and molecular biology of clock systems *12*

- Photoperiodism and photoperiodic time measurement 03
- Photoreception and phototransduction 02
- Central and peripheral clocks 02
- Suprachiasmatic nucleus, the master pacemaker 02
- Molecular biology of the time timing system 03

Unit III: Biology of sleep timing and disorders *12*

- Sleep architecture (REM and non-REM sleep), Neurobiology of sleep and waking 03
- Sleep physiology: two-process model of sleep regulation – homeostatic and circadian process 02
- Circadian rhythm sleep disorders: ASPS, DSPS 02
- Sleep engineering 01
- Melatonin as clock and calendar 02
- Impact of sleep on cognitive performance and organizational behaviour 02

Unit IV: Circadian misalignment and health *12*

- Jet lag, Social jet lag and Shift work malaise 02
- Circadian rhythm disruption and mental health (psychiatric disorders, including Major Depressive Disorder (MDD), Seasonal Affective Disorder (SAD)) 03
- Clock function: Neurodevelopmental disorders (Autism Spectrum disorder (ASD), Attention Deficit/Hyperactivity disorder (ADHD)) 03
  Neurodegenerative diseases (Parkinson's disease, Alzheimer's disease) 02
- Clocks and Immunity 02

Unit V: Clocks in the Clinic *12*

- Circadian rhythms and metabolism 02
- Clock disruption and related diseases:
  Diabetes and obesity 02

Cardiovascular disease	02
Pulmonary diseases (Asthma and COPD)	02
Cancer	02
• Clinical relevance of circadian rhythmicity	02

Suggested Readings:

- Chronobiology Biological Timekeeping: Jay. C. Dunlap, Jennifer. J. Loros, Patricia J. DeCoursey (Ed). 2004, Sinauer Associates, Inc. Publishers, Sunderland, MA, USA
- Physiological Clock (3rd edition), Erwin Bunning, The English Universities Press Ltd. London, Springer- Verlag New York, Berlin Heidelberg
- Circadian Physiology: Roberto Refinetti, CRC Press (3rd ed) 2016
- Introducing Biological Rhythms: Willard L. Koukkari, Robert B. Sothern, 2006, Springer
- Biological Timekeeping: Clock, Rhythms and Behaviour, Vinod Kumar (ed. 2017) Springer India Pvt. Limited.
- Insect Photoperiodism: Stanley D. Beck, Academic Press, New York and London
- Clocks that Time Us, (Chapter 1), Moore-Ede, MC, Sulzman, FM and Fuller, CA (1982) Harvard University Press, Cambridge.
- C. S. Pittendrigh, S. Daan (1976c). A functional analysis of circadian pacemakers in nocturnal rodents. V. Pacemaker structure: a clock for all seasons. *J. Comp. Physiol. [A]* 106:333-355.
- M. Menaker (1968). Extraretinal light perception in the sparrow. I. Entrainment of the biological clock. *Proc. Natl. Acad. Sci.* 59:414-421.
- J.C. Dunlap (1999). Molecular bases for circadian clocks. *Cell* 96:271-290.
- Roenneberg T, Allebrandt KV, Merrow M, *et al*. Social jetlag and obesity (2012). *Curr. Biol.* 22(10):939–43.
- Parsons MJ, Moffitt TE, Gregory AM, *et al*. (2015). Social jetlag, obesity and metabolic disorder: investigation in a cohort studies *Int. J. Obes.* 39(5):842–48.
- Panda S. (2016). Circadian physiology of metabolism. *Sci.*354:1008-15.
- Roenneberg T, Merrow M. (2016). The circadian clock and human health. *Curr. Biol.* 26:R432-R443.
- Koopman AD, Rauh SP, van't Riet E, *et al*. (2017). The association between social jetlag, the metabolic syndrome, and type 2 diabetes mellitus in the general population: the new Hoorn study. *J. Biol. Rhythms*. 32(4):359–68.
- Lyall LM, Wyse CA, Graham N, *et al*. (2018). Association of disrupted circadian rhythmicity with mood disorders, subjective wellbeing, and cognitive function: a cross-sectional study of 91105 participants from the UK Biobank. *Lancet Psychiatry* 5(6):507-14.

SEMESTER 1

PHCC-103: Public Health Nutrition

Total Credits: 04 **Teaching Hours: 60**

Objectives:

The aim of this course is to enable students to:

- Apply nutrition indicators for different public health purposes, including: estimating prevalence, monitoring and surveillance, and investigating diet.
- Provide knowledge base for public health conceptual frameworks and nutrition research evidence to inform public health actions.

Learning Outcomes:

After the completion of the course, the student shall be able to:

- Understand the principles of human nutrition and comprehend its relationship with health and disease.
- Describe public health aspects of malnutrition and healthcare of community.
- Understand the causes, consequences and preventive strategies for nutritional problems in the community.

Unit-1: Principles of Human Nutrition *12*

- Relationship between nutrition, health and disease, concept of food groups 01
- RDAs and Energy Requirements 01
- Macronutrients
  Carbohydrates and dietary fibre 01
  Proteins and amino acids 01
  Lipids and fatty acids 01
  Water 01
- Micronutrients
  Water soluble Vitamins 02
  Fat soluble Vitamins 01
  Minerals and trace elements 01
- Digestion, Absorption, Metabolism of carbohydrates, proteins and fats 02

Unit-2: Community Nutrition *12*

- Meaning and nature of Nutrition Education 02
- Importance of Nutrition Education 02
- Nutrition and socio –economic development 01
- Industrial and Agricultural development 01
- Malnutrition and Chronic Energy deficit 02
- Micronutrient disorders 02
- Maternal and Child Nutrition 02

Unit-3: Nutrition Assessment *12*

- Objectives and Importance of Assessing Nutritional status 02
- Methods of Assessment
  Anthropometric 02
  Biochemical 01
  Chemical 01
- Dietary assessment 02
  Interventions- objectives and components 02
- Techniques of implementation 02

Unit-4: Nutrition Related Policies and Programmes *12*

- Role of Government in Public Health Nutrition
  Nutrition Monitoring and Nutrition Surveillance 02
  Programme Monitoring and Evaluation 02
- Nutrition Intervention Programmes in India 02
- Food and Nutrition Security 02
- Poshan Abhiyan 01
- Production of Nutritious Food
  Food Fortification 01
  Food Diversification 02

Unit-5: Nutrition Education *12*

- Nutrition Indicators of India 02
- Principles of Nutrition Education 04
  Conceptualization, Formulation, Implementation and Evaluation
- Design of Nutrition Messages 02
- Execution of small projects involving various nutritional assessment methods 02
- Report Submission 02

Suggested Readings:

1. Arlene Spark – Nutrition in Public Health: Principles, Policies and Practice, CRC Press (2007).
2. Marie Boyle – Community Nutrition in Action: An Entrepreneurial Approach, 7th Ed., Cengage (2016).
3. Carolyn D Berdainer, Johanna T Dwyer and Heber - Handbook of Nutrition and Food, 3rd Edition, CRC Press (2013).
4. Buttriss Judith L, Welch Ailsa A, Kearney JM and Lanham SA - Public Health Nutrition, 2nd Edition, Wiley (2017).
5. Mark Lawrence, Tony Worsley – Public Health Nutrition: From Principles to Practice, Allen and Unwin (2007).
6. Marventano et al – Legume Consumption and CVD Risk: A Systematic Review and Meta-Analysis, *Public Health Nutr,* 2017.
7. Hurlimann et al – Ethical Issues in Development and Implementation of Nutrition-Related Public Health Policies and Interventions, *PLoS One,* 2017; 12.
8. Zeisel and Costa – Choline: An Essential Nutrient for Public Health, *Nutr Rev,* 2009; 67 (11).
9. Veronese et al – Dietary Fiber and Health Outcomes: An Umbrella Review of Systematic Reviews and Meta-Analyses, *Am J Clin Nutr,* 2018; 107 (3): 436.
10. JB Moore – From Sugar to Liver Fat and Public Health, *Proc Nut Soc,* 2019; 78 (3): 290-304.

SEMESTER 1

PHCC-104: Social and Behavioral Sciences in Health

Total Credits: 04 **Teaching Hours: 60**

Objectives:

The aim of this course is to enable students to:

- Identify, critically review and apply a range of behavioral and social sciences concepts, theories and models in public health practice.
- Identify and analyze social, cultural and behavioral factors associated with health and illness and risk behaviors of individuals as well as populations.

Learning Outcomes:

After the completion of the course, the student shall be able to:

- Understand the importance of social and behavioral factors in Public Health
- Gain knowledge with regards to models of Behavior Changes
- Be familiar with the social and Cultural Theory in context of Health and Illness
- Learn the principles of Health Counseling

Unit-1: Introduction and Overview *12*

- Relevance of Social and Behavioral Factors in Health *04*
  - History
  - New Public Health
  - Case Study
- Historical Perspectives on Population and Diseases *04*
  - Population Health Approach
  - Economic Growth and Population Health
  - Developmental Transitions
  - Infectious Disease Historical Perspective
- Social Epidemiology *04*
  - Causal Continuum
  - Global Disease Patterns

Unit-2: Theoretical Foundations *12*

- Behavioral and Social Science Theory *04*
  - Theoretical Traditions in Public Health
  - Key Concepts
  - A Typology of Theories and Models
  - Mapping Theories to the Social Ecology of Health
- Health and Illness Behavior *04*
  - Conceptions of Health Behavior
  - Determinants of Health Behavior
  - Health Behavior and the Care Delivery System
  - Study of Illness Behavior
- Social Environment and Health *04*
  - Defining the Social and Cultural Environment
  - Influence of Social and Cultural Variables on Health
  - Aspects of Health Influenced by the Social Environment

Unit-3: Sociocultural Context of Health *12*

- Importance of Social and Cultural Factors on Health *03*
  - Introduction
  - Culture
  - Social Factors
- Sociocultural Model and Health *03*
  - Personal Experience and Definition of Health and Illness
  - Access to Healthcare
  - Response to Disease, Pain, Disability
- Theories of Knowledge – Context of the Sociocultural Model *03*
  - Naturalism and Anthropological Perspectives on Understanding Culture
  - Positivism: The Disease Model
- Health – Determined by a Convergence of Factors *03*
  - Interdisciplinary Medicine
  - Recognizing the Culture of Medicine

Unit-4: Special Populations through the Life Cycle *12*

- Reproductive Health *04*
  - Definition of Reproductive Health
  - Major Reproductive Health Risks
  - Determinants of Reproductive Risk Behavior

- Promoting Reproductive Health
- Adolescent Health *04*
  - Introduction
  - Normative Adolescent Development
  - The Current Landscape of Adolescent Risk Behavior
  - Components of Programs Focused on Optimal Health
- Aging and Public Health *04*
  - Health and Well Being in Later Life
  - Psychosocial Interventions in Later Life

Unit-5: Intervention, Methods and Practice *12*

- Planning Health Promotion and Disease Prevention *03*
  - Health Promotion and Disease Prevention - History
  - Theoretical Models and Evaluation Methods
  - General Cross-Cutting Issues
- Community Based Approaches to Health Promotion *03*
  - Schools as a Setting for Health Promotion
  - Planning Community Health Interventions
  - Health Promotion in Healthcare Settings
- Social Marketing in Public Health *03*
  - Introduction
  - Case Examples of Social Marketing Applications
  - Challenges and Misconceptions
- Approaches to Policy and Advocacy *03*
  - Evidence and Theory
  - Leadership of Organizations and Systems

Suggested Readings:

1. Edberg MC – Essentials of Health Behavior: Social and Behavioral Theory in Public Health, 1st edition, Jones and Bartlett Learning (2007).
2. Sahler et al – The Behavioral Sciences and Healthcare, 4th Edition, Hogrefe (2018).
3. Bruce M King, Minium Edward W - Statistical Reasoning in the Behavioral Sciences, 5th Edition, John Wiley (2011).
4. Hinote Brian P, Wasserman JA - Social and Behavioral Science for Health Professionals, 2nd Edition, Rowman and Littlefield Publishers (2019).
5. NJ Smelser, PB Baltes - International Encyclopedia of the Social and Behavioral Sciences, 1st Edition, Pergamon (2001).

6. Glanz and Bishop – The Role of Behavioral Science Theory in Development and Implementation of Public Health Interventions, *Annu Rev Public Health,* 2010; 31.
7. Davis et al – Theories of Behavior and Behavior Change across the Social and Behavioral Sciences: A Scoping Review, *Health Psychol Rev,* 2015; 9 (3).
8. Glass and McAtee – Behavioral Science at the Crossroads in Public Health: Extending Horizons, Envisioning the Future, *Soc Sci Med,* 2006; 62 (7).
9. Ruth E Malone – Social and Political Context of Tobacco Epidemic: Nursing Research and Scholarship on Tobacco Industry, *Annu Rev Nurs Res,* 2009; 27: 63.

SEMESTER 1

PHCC-105: Public Health Activities/Lab 1

Total Credits: 04 **Teaching Hours: 8 Hours of Lab Work per Week**

Practical Exercises/Activities:

1. In a one-page Paper, explain why heart disease can be both a personal health problem and a community health problem.
2. Select one of the following individuals, do some reading on their contribution to Public Health and Epidemiology and then write a two-page Paper on the person's contribution to Public Health.
3. List all the health-related organizations that service your community. Divide your list by the three major types of health organizations, i.e.,

    - Governmental Health Agencies
    - Quasi-Governmental Health Organizations
    - Nongovernmental Health Agencies

4. Obtain Organizational Charts for the Central Government Ministry of Health and Family Welfare, State Public Health Agency and the Local Public Health Agency. Compare and contrast these charts and describe their similarities and differences.
5. Data tables will be provided and students will be asked to draw a conclusion about risk for acquiring a given disease for populations in each group. Identify age groups that exhibit highest disease rates. Explain why it is important to calculate rates to report disease outbreaks accurately.
6. Students will be asked to calculate the crude death rate, cause-specific mortality rate, case fatality rate, cause specific morbidity rate for general population as well as gender specific rates.
7. Students will be asked to list some of the infections that they have had and tell how these infections were transmitted to them – directly, by vehicle or by vector. They will be asked to talk to someone who is very old about diseases they can recall from their youth and how these diseases affected them and their families. Take notes from the response, prepare a report as well as make an oral presentation.

SEMESTER 1

PHVC-101: Human Physiology and Medical Terminology

Total Credits: 04 **Teaching Hours: 60**

Objectives:

The aim of this course is to enable students to:

- Recognize body parts and functions
- Demonstrate understanding of body mechanics
- Explain the structure and functions of different system of human body, relation to health and disease and actions
- Understand basic terminologies used in health and medical field

Learning Outcomes:

After the completion of the course, the student shall be able to:

- Understand cell structure and cell division
- Understand the structure and functions of digestive, skeletal, respiratory and cardiovascular systems
- Understand suffixes and prefixes of medical words
- Understand anatomical terms
- Understand immunity, sterilization, inflammation, and healing

Unit-1: Introduction to Human Biology *12*

- Definitions and Structure of Cell *03*
- Cell Division *03*
- Tissue Structure and its Type *03*
- Basic Anatomical Terminologies *03*

Unit-2: Organ System I (Basic Anatomy and Physiology) *12*

- Digestive System *03*
- Skeletal System *03*
- Respiratory System *03*
- Cardiovascular System *03*

Unit-3: Organ System II (Basic Anatomy and Physiology) *12*

- Lymphoid and Hematopoietic System *04*
- Excretory System *04*
- Nervous and Special Senses *04*

Unit-4: Organ System III *12*

- Endocrine System *04*
- Female Reproductive System *04*
- Male Reproductive System *04*

Unit-5: Medical Terminology *12*

- Basic Elements of Medical Words – Suffixes, Prefixes *03*
- Body Structure and Anatomical Terms *03*
- Infection, Immunity, and Sterilization *03*
- Inflammation and Healing *03*

Suggested Readings:

1. Bonnie F Fremgen, Suzanne S Frucht – Medical Terminology: An Anatomy and Physiology Systems Approach, 1st Edition, Orient Blackswan (2001).
2. Adam Brown – Medical Terminology: Easy Guide for Beginners, 1st Edition, Kalpaz Publications (2016).
3. Lippincott Williams and Wilkins – Medical Terminology: Made Incredibly Easy, 4th Edition, Lippincott Williams and Wilkins (2009).
4. Laurence A Cole, Peter R Kramer – Human Physiology, Biochemistry and Basic Medicine, 1st Edition, Academic Press (1994).
5. Gillian Pocock, Christopher D Richards, David A Richards – Human Physiology, 5th Edition, Oxford University Press (2018).

Semester II

SEMESTER 2

PHCC-201: Biostatistics and Research Methods

Total Credits: 04 **Teaching Hours: 60**

Objectives:

The aim of this course is to enable students to:

- Understand concepts, scope of biostatistics and research work, calculation and presentation of the data.
- Present research work, as well as learn writing and correlating.

Learning Outcomes:

After the completion of the course, the student shall be able to:

- Get acquainted with techniques of basic statistics and advanced statistics
- Differentiate between qualitative and quantitative methods of analysis of data
- Demonstrate knowledge of scientific method, purpose and approaches to research
- Use research to plan multi-disciplinary public health interventions
- Learn interpretation of data and preparation of report-writing

Unit-1: Statistical Methods in Public Health *12*

- Scope of Statistical Methods in Public Health *03*
  - Introduction
  - Estimation
  - Tests of Hypothesis
- Role of Statistics in Clinical Medicine *03*
  - Introduction
  - Examples of Earlier Uses of Statistics
  - Areas of Application of Statistics
- Role of Statistics in Preventive Medicine *03*
  - Introduction
  - Early Examples
  - Areas of Application
- Variables *03*
  - Definition of Variables
  - Qualitative and Quantitative Variables

Unit-2: Measures and Distributions *12*

- Frequency Distribution *03*
  - Introduction
  - Frequency Distributions and Diagrams
  - Characteristics of a Frequency Distribution
- Measures of Central Tendency and Location *03*
  - Introduction
  - Arithmetic Mean, Median, and Mode
  - Position of Averages
- Measures of Dispersion *03*
  - Introduction
  - Range and Interquartile Range
  - Mean Deviation, Variance, and Standard Deviation
- Probability and Probability Distributions *03*
  - Probability Scale and Measurement of Probability
  - Distributions – Binomial, Poisson, Normal, '*t*', and Others

Unit 3: Sampling, Tests of Significance and Estimation *12*

- Sampling and Basis of Statistical Inference *03*
  - Introduction and Definitions
  - Types of Population and Sample
  - Sampling Distribution and Statistical Inference
- Tests of Significance and Estimation *03*
  - Introduction and Procedure
  - Examples – For Large and Small Samples
  - Estimation – Examples for large and Small Samples
- Linear Regression and Correlation *03*
  - Introduction
  - Scatter Diagram, Correlation and Regression
  - Correlation Coefficient and Regression Equation
- Chi-Square Test and Analysis of Variance *03*
  - Formula for Chi-Square, Distribution and Degrees of Freedom
  - *F*-Test, Illustration of One- and Two-way ANOVA

Unit-4: Applied Statistics *12*

- Non-Parametric or Distribution-Free Statistical Tests *03*
  - Introduction
  - Advantages and Disadvantages of Non-Parametric Tests
  - Some Non-Parametric Tests and Illustrations
- Vital and Health Statistics *03*
  - Overview and Uses of Vital Statistics
  - Mechanism for Collection and Basic Formulae for Calculation
  - Introduction and Sources of Health Statistics
- Standardized Death Rates and Life Tables *03*
  - Introduction
  - Adjusted or Standardized Rates and Life Tables
  - Cox Proportional Hazards Model (Cox Regression)
- Demography *03*
  - Population, Growth, Age and Sex Composition
  - Dependency Ratio and Other Indices

Unit-5: Research Methods *12*

- Introduction to Research Methods *03*
  - Introduction
  - Research Question and Literature Review
  - Theoretical Framework or Model and Research Protocol
- Interventional and Observational Studies *03*
  - Introduction
  - General Principles of Experimental Designs and Examples
  - Cross-Sectional, Prospective and Retrospective Studies
- Sample Size Determination *03*
  - Introduction
  - Specifications Needed to Calculate Sample Size
  - Examples of Sample Size Estimation
- Data Processing and Presentation of Data *03*
  - Role of Computer in Data Management
  - Presentation by Graphs and Diagrams

Suggested Readings:

1. Agresti, A (2002). Categorical Data Analysis, Wiley Series in Probability and Statistics.
2. Cochran, W.G. (2007). Sampling Techniques, Wiley.

3. Daniel, D. W. and Cross, C. L. (2004). Biostatistics: Basic Concepts and Methodology for the Health Sciences, Wiley.
4. Everitt, B. S. and Hothorn, T (2006). A Handbook of Statistical Analyses Using R, Chapman and Hall.
5. Gerstman, B.B. (2014): Basic Biostatistics, 2nd Ed.
6. Gun, A.M., Gupta, M.K. and Dasgupta B. (2016). Fundamentals of Statistics-Vol I, World Press.
7. Gun, A.M., Gupta, M.K. and Dasgupta B. (2016). Fundamentals of Statistics-Vol II, World Press.
8. Logan, M - Biostatistical Design and Analysis Using R: A Practical Guide, Wiley-Blackwell (2011).
9. Terwee et al – The Quality of Systematic Reviews of Health-Related Outcome Measurement Instruments, *Qual Life Res,* 2016; 25.

SEMESTER 2

PHCC-202: Preventive and Curative Nutrition

Total Credits: 04 **Teaching Hours: 60**

Objectives:

The aim of this course is to enable students to:

- Gain a basic understanding of role of preventive and curative nutrition strategies.
- Examine the consequence of public health implications of national preventive nutrition strategies in developing countries.

Learning Outcomes:

After the completion of the course, the student shall be able to:

- Apply the nutrition care process to the nutritionally vulnerable individuals using best evidence
- Develop a detailed understanding of etiology, physiological and metabolic anomalies of various acute and chronic disorders/diseases
- Understand critical periods in growth, development and impact of malnutrition

Unit-1: Preventive and Curative Diet Therapy *12*

- Diet Therapy 01
- Nutrition Support- Parenteral and Enteral Nutrition 02
- Therapeutic Diet 02
- Nutrition Care Process 02
- Prevention of Malnutrition 01
- Prevention of Deficiency Diseases 02
- Functional foods 01
- Nutraceuticals 01

Unit-2: Nutrition in Different Age Groups *12*

Determinants of growth, development and changes in body composition throughout the life cycle

- Nutrition in Pregnancy and Lactation 03
- Nutrition in Infants 02

- Nutrition in Pre-school Children 02
- Nutrition in School age Children and adolescent 02
- Nutrition in Adulthood and Old age 03

Unit-3: Nutrition Management of Lifestyle Diseases *12*

- Cardiovascular diseases 2
- Diabetes 2
- Obesity 2
- Liver Diseases 2
- Pancreas , Gall Bladder 1
- Renal diseases 1
- Bone diseases 1
- Cancer 1

Unit-4: Nutrition Management of Communicable Diseases *12*

- Nutrition Effects on Emergence of Infections 4
- Nutrition And Immunity 4
- Malnutrition and communicable diseases 4

Unit-5: Preventive and Curative Nutrition Strategies *12*

- Data evidence and Knowledge (SWOT Analysis) 2
- National Nutrition Strategies to combat Malnutrition 2

Planning, Implementation, Monitoring, Tracking and recognizing progression 2

- National Nutrition Mission

Institutional management 2

Interventions 2

- Strategic Partnerships and Alliances 2

Suggested Readings:

1. F Antia and P Abraham – Clinical Dietetics and Nutrition, 4th Edition, Oxford (2002).
2. Pooja Verma – Food Nutrition and Dietetics, 1st Edition, CBS Publishers and Distributors (2018).
3. Anjana Agarwal, Shobha A Udipi - Textbook of Human Nutrition, 1st Edition, Jaypee Brothers Medical Publishers (2014).
4. YK Joshi - Basics of Clinical Nutrition, 2nd Edition, Jaypee Brothers Medical Publishers (2008).

5. Pallavi M Mehta, Komal B Chauhan - Ageing, Nutrition and Health, 1st Edition, Kalpaz Publications (2016).
6. Hill, Fleming and Kris-Etherton – The Role of Diet and Nutritional supplements in Preventing and Treating Cardiovascular Disease, *Curr Opin Cardiol,* 2009; 24.
7. Moynihan and Petersen – Diet, Nutrition and the Prevention of Dental Diseases, *Public Health Nutr,* 2004; 7 (1A).
8. Cicco et al – Nutrition and Breast Cancer: A Literature Review on Prevention, Treatment and Recurrence, *Nutrients,* 2019; 11 (7): 1514.
9. Bennett et al – Nutrition and the Science of Disease Prevention: A Systems Approach to Support Metabolic Health, *Ann NY Acad Sci,* 2015; 1352:1-12.
10. Alan R Gaby – Nutritional Approaches to Prevention and Treatment of Gallstones, *Altern Med Rev,* 2009; 14 (3): 258-67.

SEMESTER 2

PHCC-203: Health Policy and Management

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ To analyze the main components and challenges in organization, financing, and delivery of healthcare and public health services.

→ To describe the legal basis for public health and health services.

Learning Outcomes- Students will be able to-

→ Understand the concept of Health Policy, Planning and Implementation

→ Critically evaluate Health Care at Union, State, District and Block Level

→ Get acquainted with Health disparities and Health Justice in India

→ Develop and understanding of managing Public Health Enterprise

Unit-1: An Overview of Health Policy *12*

- Understanding the Role of and Conceptualizing Health Policy *03*
  - Introduction
  - Role of Policy and Law in Healthcare and Public Health
  - Conceptualizing Health Policy and Law
- Policy and the Policy Making Process *03*
  - Introduction
  - Defining Policy
  - Public Policy Making Structure and Process
- Healthcare Delivery Systems in India *03*
  - Primary Healthcare to Universal Health Coverage
  - Government (Public) Health Services
  - Primary Health Care (PHC)
- Public Health Institutions and Systems *03*
  - Roles of Government Public Health Agencies
  - Essential Public Health Services

Unit-2: Essential Issues in Health Policy *12*

- Individual Rights in Healthcare and Public Health *03*
  - Introduction and Background
  - Individual Rights and Healthcare – A Global Perspective
  - Individual Rights and the Healthcare System
- Understanding Health Insurance *03*
  - Introduction
  - Health Insurance in India
  - How Health Insurance Operates
- Health Economics in a Health Policy Context *03*
  - Introduction
  - Health Economics Defined
  - Economic Basics: Demand, Supply, and Markets
- Healthcare Quality Policy *03*
  - Quality Control Through Licensure and Accreditation
  - Medical Errors as a Public Health Concern

Unit-3: Health Reforms and Policy Development in India *12*

- Public Health Policy and Services in India *03*
  - Overlapping Reforms in Health System
  - National Health Policy (NHP) 1983 – "Health for All"
  - National Population Policy (NPP) 2000
- SMP in Health and Family Welfare in India *03*
  - Introduction to Social Marketing
  - Objectives and Scope of Social Marketing Programme
  - Approach and Planning of SMP in India
- National Health Policy 2017 of India *03*
  - Introduction
  - Goal, Principles, and Objectives
  - Policy Thrust
- Reforms Through RMNCH+A Approach and NHM *03*
  - Conceptualization of RMNCH+A Strategy
  - Approach Adopted in the RMNCH+A Strategy

Unit-4: Public Health Management Sciences *12*

- Management Sciences for Public Health *03*
  - Public Health
  - Management – Introduction and Approaches
  - Health System
- Supportive Supervision, Monitoring and Evaluation *03*
  - Methods of Supervision
  - Health System Monitoring
  - Evaluation of Health Programme or Health Services
- Application of Principles of Epidemiology in Health Management *03*
  - Application of Epidemiology in Health Management
  - Epidemiological Surveillance of Diseases
- Disaster Preparedness and Management *03*
  - Disaster Preparedness
  - Natural Disasters in India
  - National Disaster Management Authority

Unit-5: Key Health Management Functions *12*

- Community Organization – A Management Function *03*
  - Introduction
  - Rural and Urban Communities – Case Studies
  - Tribal Community
- Planning of Health Services *03*
  - Steps in Planning of Subcentre Action Plan
  - Methods of Assessment of Health Problems (Needs)
  - Decentralized Participatory Planning
- Strategic Planning in Health *03*
  - Introduction
  - District Health Action Plan (DHAP)
  - SWOT Analysis of NHM for DHAP
- E-Health and Telemedicine *03*
  - Telemedicine and Elements Related to Telemedicine
  - Uses of Telemedicine in India

Suggested Readings:

1. Carrin et al – Health Systems, Policy, Finance and Organization, 1st Edition, Academic Press (2009).
2. Brij Mohan Mathur – Public Health Policy and Administration, 1st Edition, Commonwealth Publishers (2012).
3. Joel B Teitelbaum and Sara E Wilensky – Essentials of Health Policy and Law, 3rd Edition, Jones and Bartlett Publishers (2018).
4. S Lal, Vikas – Public Health Management: Principles and Practice, 2nd Edition, CBS Publishers and Distributors (2018).
5. Dean M Harris – Ethics in Health Services and Policy: A Global Approach, 1st Edition, Jossey-Bass (2011).
6. Thomas R Oliver – Politics of Public Health Policy, *Annu Rev Public Health,* 2006; 27.
7. Heiman et al – Health Policy Training: A Review of the Literature, *Int J Environ Res Public Health,* 2016; 13.
8. Daniel M Fox – Systematic Reviews and Health Policy: The Influence of a Project on Perinatal Care since 1988, *Milbank Q,* 2011; 89 (3).
9. Thomson et al – Effects of Public Health Policies on Health Inequalities in High-Income Countries: An Umbrella Review, BMC Public Health, 2018; 18 (1): 869.

SEMESTER 2

PHCC-204: Public Health in Disasters and Outbreaks

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ To analyze the types of disaster and disaster planning
→ To describe the disaster preparedness plan, risk and vulnerability

Learning Outcomes- Students will be able to-

→ Understand the concept of complex emergencies and effect of disaster on health
→ Critically evaluate risk analysis and assessment
→ Get acquainted with disaster mitigation strategies

Unit 1 Introduction to disaster preparedness and planning

- Types of disaster
- Essentials of disaster planning
- Environmental and occupational health issues
- Complex emergencies
- Effect of disaster on health

Unit 2 Disaster Preparedness and Management

- Disaster Preparedness plan
- Disaster management: Hazard, risk and vulnerability
- Disaster risk reduction, risk analysis techniques
- People participation in Risk Assessment
- Role of technology in disaster preparedness
- Early warning

Unit 4 Disaster Mitigation and Response

- Disaster mitigation strategies
- Emerging trends in disaster mitigation

- Rehabilitation, Reconstruction and Recovery
- Disaster Response: role and responsibilities of different governmental organizations at local, district, state and central level

Unit 5 Public Health in Outbreaks

- Disaster outbreaks in India
- Outbreak investigation
- Epidemic control in India
- Integrated disease surveillance, legislation for the control of outbreak in India, International health regulations

References:

1. Natural Disaster by Sharma R K and Sharma G . APH Publishing Corporation, New Delhi.
2. Public Health Management of Disasters- A practice guide by Linda Young Landesman.
3. Handbook of Disasters Risk Reduction and Management by Christian Madu and Chu-Hua Kuei.

SEMESTER 2

PHCC-205: Demography and Population Studies

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ To familiarize students on fundamentals of demography and population studies and its links with health, family planning, population policies and programmes.

→ To focus on understanding the core social demographic variables and how these variables influence population growth, composition, and structure.

Learning Outcomes- Students will be able to-

→ Differentiate Demography and Population Sciences
→ Use methods of demographic Data collection
→ Compare and Contrast population composition and demographic transition
→ Be familiar with the measures of fertility and mortality in India.

Unit-1: Introduction to Population and Health *12*

- Definitions, Scope and Nature *03*
- Importance of the Study *03*
- Historical Review *03*
- Difference and Similarities in Demography and Population Sciences *03*

Unit-2: Methods of Demographic Data Collection *12*

- Primary and Secondary Sources of Data Collection *03*
- Procedures, Uses, Strengths and Weakness of Census *03*
- Vital Statistics, Sample Survey, SRS *03*
- Data From National Health Program *03*

Unit-3: Composition and Demographic Transition *12*

- Sex Composition, Factors Affecting Sex Composition *03*
- Age Structure, Population Pyramids *03*
- Impact of Various Demographic Processes on the Age Structure *03*
- Demographic Transition *03*

Unit-4: Measures of Fertility *12*

- Determinants: Social, Economic, Political, Natural *03*
- Fertility Levels and Trends in India and World *03*
- Measures of Fertility, Selected Theories of Fertility *03*
- Impact of Level of Fertility on Reproductive Health *03*

Unit-5: Measures of Mortality *12*

- Measures and Causes of Mortality – Epidemiological Perspective *03*
- Infant, Neonatal and Maternal Mortality *03*
- Disease Specific Mortality *03*
- Trends of Mortality in India *03*

Suggested Readings:

1. Sharma Rajendra K – Demography and Population Problems, 1st Edition, Atlantic Publishers and Distributors (2004).
2. Dyson Tim - Population and Development: The Demographic Transition, 1st Edition, Zed Books Ltd. (2013).
3. Sarah Harper - Demography: A Very Short Introduction, 1st Edition, Oxford University Press (2018).
4. VC Sinha and Easo Zacharia - Elements of Demography, 2nd Edition, Allied Publishers Private Limited (2009).
5. OS Shrivastava - Demography and Population Studies, 1st Edition, Quality Publishing Company (2007).
6. Perrott and Holland – Population Trends and Problems of Public Health, *Milbank Q,* 2005; 83.
7. Onyebuchi A Arah – On the Relationship between Individual and Population Health, *Med Health Care Philos,* 2009; 12 (3).

SEMESTER 2

PHCC-206: Public Health Activities/Lab 2

Total Credits: 04 **Teaching Hours: 8 Hours of Lab Work per Week**

Case Study Exercises – Evidence based Public Health

Sample Case: Community Care for the Aging Care of the aging population in the community is currently provided by a variety of government, for-profit, not-for-profit and religious organizations, as well as individuals. A recent think-tank report shows that many elders are falling through the cracks and recommends that local elder care organizations form a coalition to address these elders who are not receiving services. Before investing the time and energy to build such a coalition, the think-tank is asked by the government to provide some examples of similar collaborative programs for aging services that are effective.

P (Population or Patient or Problem): aging population – care and service providers

I (Intervention): coalition-building / collaborative programs

C (Comparison, if one):

O (Outcome(s)): reduce falling through the cracks;

Background questions: Are there certain types of elders who generally fall through the cracks?

Foreground question (searchable): Will forming a coalition of organizations providing care for seniors result in more consistent access to services for seniors currently not receiving adequate services? What are characteristics of programs that have done this effectively?

Practical Exercises in Epidemiology

Task1. Explain the roles of different agencies in identifying levels of health and disease in communities.

Task2. Explain, using statistical data, the epidemiology of one infectious and one non-infectious disease that is widespread in our own country.

Task3. Evaluate the effectiveness of different approaches and strategies to control the incidence of disease in communities.

SEMESTER 2

PHVNC-201: Ancient Indian Systems of Health

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ To recognize and appreciate the functioning of medical pluralism in India in tune with cultural similarities and diversities.
→ To provide knowledge base for integrating plural systems in healthcare.

Learning Outcomes:
After the completion of the Course, the student shall be able to:
→ Understand the development of Medical Pluralism in India
→ Appreciate contribution of Local Health Traditions in the treatment of communicable and non-communicable diseases
→ Critically evaluate ancient systems of health.

Unit-1: Development of Medical Pluralism in India *12*

- Ancient India *03*
- Medieval Times *03*
- Pre and Post Independence *03*
- Medical Pluralism Integration in Health Services *03*

Unit-2: Basic Principles of AYUSH System *12*

- Their Congruence and Divergence *03*
- AYUSH and Public Health *03*
- SOWA – RIGPA *03*
- Research and Industry Perception in Plural System *03*

Unit-3: Contribution of Plural Systems *12*

- Treatment of Communicable Diseases *03*
- Treatment of Non-Communicable Diseases *03*
- Treatment of Mental Illness *03*
- Women, Child, Adolescent and Geriatric Health *03*

Unit-4: Local Health Traditions (LHTs) *Teaching Hours: 12*

- Indigenous Practices and Health Providers *03*
- LHTs and Primary Health Care *03*
- Upgrade LHTs from 'Residual Category' *03*
- Community Based-Facilitators *03*

Unit-5: Ancient Medicine in the Contemporary Setup *Teaching Hours: 12*

- Contrasting Approaches to Health: Ayurveda and Biomedicine *03*
- Ayurveda in the 21st Century *03*
- Commercializing Traditional Medicine *03*
- Contemporary Challenges in Ancient Medicine *03*

Suggested Readings:

1. V Sujatha, Leena Abraham – Medical Pluralism in Contemporary India, 1st Edition, Orient Blackswan (2012).
2. Palit C and Dutta A - History of Medicine in India: The Medical Encounters, 1st Edition, Kalpaz Publications (2005).
3. Pati B and Harrison M – The Social History of Health and Medicine in Colonial India, 1st Edition, Routledge Studies in South Asian History (2009).
4. Harrison M - Public Health in British India: Anglo-Indian Preventive Medicine, 1859-1914, Cambridge University Press (1994).
5. RK Mutatkar - AYUSH in Public Health, In 2 Volumes, 1st Edition, Concept Publishing (2017).
6. A Minocha – Medical Pluralism and Health Services in India, *Soc Sci Med Med Anthropol,* 1980; 14.
7. Sharmistha Mallick – Challenges of Mainstreaming: Ayurvedic Practice in Delhi Government Health Institutions, *J Ayurveda Integr Med,* 2016; 7 (1).
8. Lakshmi et al – Cultural Consonance, Constructions of Science and Co-Existence, *Health Policy Plan,* 2015; 30 (8): 1067.

Semester III

SEMESTER 3

PHCC-301: Epidemiology

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ To introduce the basic principles and methods of epidemiology and demonstrate their broad applicability to public health.

→ To provide fundamental skills needed to interpret and critically evaluate literature relevant to public health professionals.

Learning Outcomes- After doing this course, students will be able to-

→ Understand basic principles and methods of Epidemiology

→ Become familiar with public health cycle as framework for professionals.

→ Use various public data sources to measure disease frequency, person-time exposure, association and impact

→ Critically evaluate Health Services in India.

Unit-1: Introduction to Epidemiology *12*

- Definition and History *03*
  - Study, Distribution, and Determinants
  - Health Related States or Events
  - Historical Evolution of Epidemiology
- Uses and Core Epidemiologic Functions *03*
  - Assessing Community Health
  - Making Individual Decisions
  - Public Health Surveillance
- Epidemiologic Approach *03*
  - Defining a Case
  - Components of a Case Definition for Outbreak Investigations
  - Criteria in Case Definitions
- Descriptive and Analytic Epidemiology *03*
  - Time, Place and Person
  - Experimental and Observational Studies

Unit-2: Measures of Risk *12*

- Frequency Measures *03*
  - Overview
  - Ratio, Proportion, and Rate
  - Natality (Birth) Measures
- Morbidity Frequency Measures *03*
  - Incidence Proportion or Risk
  - Incidence Rate or Person-Time Rate
  - Prevalence
- Mortality Frequency Measures *03*
  - Mortality Rate
  - Death to Case Ratio
  - Case Fatality Rate
- Measures of Association and Public Health Impact *03*
  - Risk, Rate and Odds Ratios
  - Attributable Proportion

Unit-3: Displaying Public Health Data *12*

- Tables *04*
  - One Variable Tables
  - Two and Three Variable Tables
  - Tables of Statistical Measures Besides Frequency
  - Composite Tables
- Graphs *04*
  - Arithmetic Scale Line Graphs
  - Semilogarithmic Scale Line Graphs
  - Histograms and Population Pyramid
  - Frequency Polygons
- Other Data Displays *04*
  - Scatter Diagrams
  - Bar Charts - Grouped, Stacked, 100% Component, and Deviation
  - Dot, Box, and Forest Plots; Phylogenetic and Decision Trees

Unit-4: Public Health Surveillance *12*

- Introduction, Purpose and Characteristics of Health Surveillance *03*
  - Overview of Public Health Surveillance
  - Evolution of Surveillance
  - Purpose and Characteristics of Public Health Surveillance
- Identifying Health Problems for Surveillance *03*
  - Selecting a Health Problem for Surveillance
  - Defining the Health Problem and Identifying Information
  - Establishing the Scope for Surveillance
- Identifying or Collecting Data for Surveillance *03*
  - Introduction
  - Sources and Methods for Gathering Data
  - Major Health Data Systems
- Analyzing and Interpreting Data *03*
  - Analyzing by Time or Place or Both and by Person
  - Interpreting Results of Analyses

Unit-5: Investigating an Outbreak *12*

- Introduction to Investigating an Outbreak *03*
  - Overview
  - Uncovering Outbreaks
  - Deciding Whether to Investigate a Possible Outbreak
- Steps of an Outbreak Investigation *09*
  - Prepare for Field Work
  - Establish the Existence of an Outbreak and Verify the Diagnosis
  - Construct a Working Case Definition
  - Find Cases Systematically and Record Information
  - Perform Descriptive Epidemiology
  - Develop and Evaluate Hypotheses Epidemiologically
  - Reconsider, Refine and Re-Evaluate Hypotheses
  - Compare and Reconcile With Lab and Environmental Studies
  - Implement Control and Prevention Measures

Suggested Readings:

1. Gordis Leon – Epidemiology, 5th Edition, Elsevier Saunders (2014).
2. Bonita, Beaglehole, Kjellstrom - Basic Epidemiology, 2nd Edition, World Health Organization (2006).
3. Schneider and Lilienfeld – Lilienfeld's Foundations of Epidemiology, 4th Edition, OUP, USA (2015).
4. Friis and Sellers - Epidemiology for Public Health Practice, 5th Edition, Jones and Bartlett Publishers (2014).
5. Rothman, Greenland, Lash – Modern Epidemiology, 3rd Edition, Lippincott Williams and Wilkins (2008).
6. Page et al – Epidemiology and Reporting Characteristics of Systematic Reviews of Biomedical Research: A Cross-Sectional Study, *PLoS Med,* 2016; 13.
7. Sario et al – Scoping Review of Epidemiological Methods Used to Investigate Health Effects of Industrially Contaminated Sites, *Epidemiol Prev,* 2018; 42 (5S1).
8. Stanner et al – A Review of the Epidemiological Evidence for the 'Antioxidant Hypothesis', Public Health Nutr, 2004; 7 (3): 407.

SEMESTER 3

PHCC-302: Communicable and Non-Communicable Diseases

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ To understand the burden of disease of the most common CDs and NCDs and how risk factors affect the burden of CDs and NCDs.

→ To identify the following for a CD/NCD problem: Type of study to conduct; Sampling methods to use; Measure of association to calculate for a particular study; and interpret the results of descriptive and analytic studies.

Learning Outcomes- After doing this course, students will be able to-

→ Develop a detailed understanding of Epidemiology of Communicable and Non-communicable diseases

→ Gain knowledge of Current Programmes for prevention and management of CDs and NCDs in India

→ Be familiar with the risk factors associated with various CDs and NCDs.

Unit-1: Concepts of Health and Disease in Public Health *12*

- Genetics and Public Health *03*
  - Genetics and its Relationship to the Health of Individuals and Populations
  - Incorporating Genetics Perspectives In Public Health
  - Single-Gene and Common, Complex Disorders
- Public Health Triad *03*
  - Public Health Triad and its Study
  - Conservation Biology and Public Health
  - Biodiversity and its Importance to the Future of the Planet
- Immunizations and Immunity *03*
  - Two Systems of Immunity
  - Vaccine – To Achieve Resistance to an Infectious Organism
  - National Immunization Schedule
  - Recommended Childhood and Adult Immunizations in India
- Inflammation – Role in Acute and Chronic Disease *03*
  - Basic Sequence of Events in Acute Inflammation
  - Major Mediators of Chronic Inflammation

Unit-2: Communicable Disease Epidemiology *12*

- Elements of Communicable Diseases *03*
  - What are Communicable Diseases?
  - Agent and Transmission
  - Host Factors and The Environment
- Communicable Disease Theory *03*
  - Force of Infection
  - Epidemic Theory
  - Endemicity and Quantitative Dynamics
- Control Principles and Methods *03*
  - Control Principles
  - Control Methods – Vaccination
  - Environmental Control Methods
- Control Strategy and Organization *03*
  - Investigation of an Outbreak
  - Surveillance, Control and Eradication

Unit-3: Public Health Burden of Communicable Disease *12*

- Tuberculosis (TB) – The Deadly Comeback of an old Infectious Disease *02*
  - Latent Tuberculosis (TB) Infection and Active Disease
  - Transmission, Natural History of Infection, Symptoms Diagnosis of TB
- Viral Hepatitis *02*
  - General Concepts – Hepatitis A, B, C, D, E and GB Viruses
  - Distinctive Properties, Pathogenesis, Host Defenses, Epidemiology
  - Diagnosis, Control and Prevention
- HIV/AIDS Epidemic *02*
  - AIDS – History and Time Line
  - HIV – Biology, Transmission, and Natural History in Humans
  - Epidemiology of AIDS
- Human Papillomavirus (HPV) Infection and Immunization *03*
  - Major Epidemiologic Features of HPV Infection
  - Progression of HPV Infection to Cervical Cancer
  - Concept of Immune Evasion as it Applies to HPV Infection
- Pandemics – Risks, Impacts and Mitigation *03*
  - History of Pandemics
  - Risks, Consequences and Mitigation – Preparedness and Response

Unit-4: Epidemiology of Non-Communicable Disease *12*

- Problem Definition *03*
  - Understanding NCDs
  - NCDs – Risk Factors and Determinants
  - Sociopolitical Landscape of NCDs
- Solution Generation *03*
  - Evidence for Population Level Approaches to Prevention
  - Economic Evaluation
  - Developing a Prevention Strategy
- Resource Mobilization and Implementation *03*
  - Capacity Building
  - Implementation of an NCD Prevention Strategy
  - Implementation – Beyond the Health Sector
- Monitoring Progress *03*
  - Evaluation and Monitoring
  - Revisiting the Stages of the Policy Cycle

Unit-5: Public Health Burden of Chronic Disease *12*

- Hypertension and Cardiovascular Diseases *03*
  - Factors Contributing to High Blood Pressure
  - Role of Atherothrombosis in the Development of Vascular Disease
  - Common Signs and Symptoms of Stroke
- Cancers – Biology and Prevention *03*
  - Biology of Cancer and its Development
  - Multistage Carcinogenesis Model of Cancer
  - Targets of Cancer Prevention
- Diabetes – A Public Health Pandemic *03*
  - Basic Science and Pathophysiology of Diabetes Types 1 and 2
  - Indian and Global Epidemiology of Diabetes
  - Characteristics of an Individual at Risk for Diabetes
- Burden of Accidents and Malnutrition *03*
  - Road Traffic Accidents
  - Malnutrition

Suggested Readings:

1. JS Thakur – Public Health Approaches to Non-Communicable Diseases, 1st Edition, Lippincott Williams and Wilkins (2015).
2. Roger Webber – Communicable Diseases: A Global Perspective, 1st Edition, Cabi Publishing (2019).
3. David V McQueen – Global Handbook on Noncommunicable Diseases and Health Promotion, 1st Edition, Springer-Verlag New York (2013).
4. Narain and Kumar – Textbook of Chronic Noncommunicable Diseases, 1st Edition, Jaypee Brothers Medical Publishers Private Ltd. (2015).
5. Rayner et al – An Introduction to Population-Level Prevention of Non-Communicable Diseases, 1st Edition, Oxford University Press (2017).
6. Santosh J Passi – Prevention of Non-Communicable Diseases by Balanced Nutrition, *Curr Diabetes Rev,* 2017; 13.
7. A Boutayeb – Double Burden of Communicable and Non-Communicable Diseases in Developing Countries, *Trans R Soc Trop Med Hyg,* 2006; 100 (3).
8. Allen, Cobiac, Townsend – Quantifying Global Distribution of Premature Mortality From Noncommunicable Diseases, *J Public Health (Oxf),* 2017; 39 (4): 698.
9. Roger S Magnusson – Global Health Governance and the Challenge of Chronic, Non-Communicable Disease, *J Law Med Ethics,* 2010; 38 (3): 490-507.

SEMESTER 3

PHCC-302: MOOC – Yoga Practices/ Introduction to Lifestyle Medicine

Total Credits: 04

Few relevant MOOC Course Sites for these Courses are given below:

(i) Yoga Practices

URL – https://www.classcentral.com/course/swayam-yoga-practices-2-17845 **Overview**

The course includes the following main practices and activities: Preparatory practices including Sukshmavyayama, Breathing Exercises, Loosening Practices, Suryanamaskara or Sun Salutation, Asanas, Kriyas, Bandhas, Mudras, Pranayama, Dhyana or Meditation, chanting of shlokas, bhajans and patriotic songs and activities such as krida yoga, karma yoga activities, ananda sabha or happy assembly including presentations and skits, dramas and many more such activities which help a yoga practitioner grow from tamas to rajas to sattva and eventually to gunaathita sthiti or attainment. Relaxation Techniques include Quick Relaxation Techniques and Deep Relaxation Techniques.

(ii) Engineering Health: Introduction to Yoga and Physiology

URL - https://mooc.es/course/engineering-health-introduction-to-yoga-and-physiology

(iii) The Science and Practice of Yoga

URL – https://yogamooc.com

(iv) Introduction to Lifestyle Medicine

URL – https://www.edx.org/course/introduction-to-lifestyle-medicine

SEMESTER 3

PHEL-301A: Advanced Epidemiology

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Provide an in-depth review of causal criteria and discuss in detail the outcomes model in epidemiology

→ Provide an analysis of epidemiological methods for monitoring the health status of people to identify and solve public health problems.

Learning Outcomes- After doing this course, students will be able to-

→ Understand the concept of Epidemiology and Management

→ Learn principles, programmes and planning cycle in context of epidemiology

→ Demonstrate competency in developing strategies for preventing epidemics

Unit-1: Introduction to Advanced Epidemiology *12*

- Models: Causal Criteria *04*
- Potential Outcomes Model *04*
- Directed Acyclic Graphs and Conceptual Framework *04*

Unit-2: Bias Analysis *12*

- Quantitative Bias Analysis *02*
- Selection Bias *02*
- Confounding Bias and Methods to Reduce Confounding *02*
- Information Bias Analysis *02*
- Probabilistic Bias Analysis *02*
- Multiple Bias Analysis *02*

Unit-3: Study Design *12*

- Nested Study Designs *03*
- Advanced Designs in Clinical Trials *03*
- Systematic Reviews *03*
- Meta-analysis Overview *03*

Unit-4: Special Epidemiology *12*

- Vector-Borne Diseases *03*
- Nutritional Epidemiology *03*
- Infectious Disease Epidemiology *03*
- Environmental Epidemiology *03*

Unit-5: Outbreak Investigation *12*

- Following Disaster *03*
- Live Outbreak Investigation *03*
- Surveillance *03*
- Public Data Sources: CRS, SRS, Census, NFHS, DLHS, HMIS etc. *03*

Suggested Readings:

1. Tony Andrew – Epidemiology: Advanced Study and Practices, 1st Edition, American Public Health Association (2011).
2. Kenneth J Rothman, Timothy L Lash, Sander Greenland – Modern Epidemiology, 3rd Edition, Springer (2011).
3. Michael Gregg – Field Epidemiology, 3rd Edition, Oxford University Press, USA (2011).
4. C. Glen Mayhall – Hospital Epidemiology and Infection Control, 4th Edition, Lippincott Williams and Wilkins (2013).
5. Patrick S Parfrey, Brendan J Barrett – Clinical Epidemiology: Practice and Methods (Methods in Molecular Biology (1281)), 2nd Edition, Humana (2016).

SEMESTER 3

PHEL-301B: Hospital Management

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ To introduce students to the classification of hospitals and health committees
→ Review functions of hospital administrator and hospital management and feedback

Learning Outcomes- After doing this course, students will be able to-

→ Understanding hospital management- Concept and Theories
→ Gain knowledge about health care plans of government
→ Develop an understanding of corporate social responsibility
→ Explain the determinants of human resource management

Unit-1: History, Growth and Classification of Hospitals *12*

- History, Definition and Classification of Hospitals *03*
- Role and Recommendation of Health committees Formed by Government *03*
- Health Care Plans of Government *03*
- Function of a Hospital and Hospital Ethics *03*

Unit-2: Hospital Management and Administrative *12*

- Leadership, Role and Responsibility of Hospital Administrator *03*
- Challenges in Hospital Management and Feedback *03*
- Corporate Social Responsibility *03*
- Steps in Establishing a Hospital and Fund Allocation *03*

Unit-3: Human Resource Management *12*

- Overview and Evolution of Human Resource Management *03*
- Role of Human Resource Management in Hospital *03*
- Employees Performance Appraisal *03*
- Working Condition, Safety, Welfare and Health Services for Employees *03*

Unit-4: Organization Development, Management and Biomedical Waste *12*

- Organization Development *03*
- Human Relation in Hospitals *03*
- Bio-Medical Waste Management in Hospitals *03*
- Legal Issues for Hospital Management *03*

Unit-5: Health Management Information System (HMIS) *12*

- Materials Management *03*
- Logistics- meaning, definition and importance *03*
- Logistics cycle and its components *03*
- Purchase and Supply Chain Management *03*

Suggested Readings:

1. B M Sakharkar – Principles of Hospital Administration and Planning, 1st Edition, Springer (2004).
2. D C Joshi and Mamta Joshi – Hospital Administration, 2nd Edition, Springer Publishing Company (2008).
3. G R Kulkarni, Libert Anil Gomes, and P Satyashankar – Financial Management for Hospital Administration, 1st Edition, Jaypee Brothers (2009).
4. Gupta Joydeep Das – Hospital Administration and Management: A Comprehensive Guide, 2nd Edition, Sage Publications Pvt Ltd. (2015).
5. James R Langabeer Ii, Jeffrey Helton – Health Care Operations Management: A Systems Perspective, 2nd Edition, Jones and Bartlett Learning (2016).

SEMESTER 3

PHEL-301C: Introduction to RMNCH+A

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Provide knowledge about needs of females and adolescents on reproductive and sexual health.

→ Examine major causes of mortality among women and children as well as delays in accessing and utilizing healthcare and services.

→ Provide an understanding of 'continuum of care' for equal focus on all life stages.

Learning Outcomes- Students will be able to-

→ Understand reproductive and Sexual Health

→ Demonstrate knowledge of antenatal and postpartum care and RCH

→ Gain knowledge with regard to child and adolescent health

→ Be familiar with the use of indices and indicators for infant and maternal mortality in India.

Unit-1: Reproductive and Sexual Health (RSH) *12*

- Principles of Reproductive and Sexual Health (RSH) *03*
  - Introduction
  - Reproductive and Sexual Health Fundamentals
- Contraception *03*
  - Combined Hormonal Contraception
  - Progestogen Only Contraceptives
  - Intrauterine Contraception and Barrier Methods
- Reproductive Health *03*
  - Abortion and Abnormal uterine bleeding
  - Menstrual problems and Gynaecological problems in RSH
  - Pelvic inflammatory disease and Menopause
- Sexual Health *03*
  - Chlamydia trachomatis, Gonorrhea and non-gonococcal urethritis
  - Vaginal discharge and Bacterial vaginosis

Unit-2: Maternal Health *12*

- Promote, Prevent and Protect Maternal Health *06*
  - Antenatal Care
  - Prevention of Pre-Eclampsia and Eclampsia
  - Interventions to Improve Preterm Birth Outcomes
  - Prevention of Maternal Peripartum Infections
  - Labour and Child Birth
  - Prevention of Postpartum Hemorrhage
- Management of Maternal Conditions *06*
  - Postpartum Hemorrhage
  - Pre-Eclampsia and Eclampsia
  - Peripartum Infections
  - HIV Infection
  - Malaria

Unit-3: Newborn and Child Health *12*

- Promotion of Health and Prevention of Illnesses in Newborn *03*
  - Care of the Newborn Immediately After Birth
  - Postnatal Care
  - Newborn Immunization
- Management of Illnesses in Newborns *03*
  - Newborn Resuscitation
  - Management of Suspected Neonatal Sepsis
  - Care of the Preterm and Low Birth Weight Newborn
- Promotion of Health and Prevention of Illnesses in Childhood *03*
  - Immunization and Breastfeeding
  - Complementary Feeding and Micronutrients (Vitamins, Minerals)
  - Care for Development
- Management of Childhood Illnesses *03*
  - Pneumonia and Other respiratory Illnesses
  - Diarrhea and Tuberculosis

Unit-4: Maternal and Child Health Programmes in India *12*

- Introduction *03*
  - Initiatives to Address Maternal and Child Health
  - Situational Analysis of Maternal and Child Health
  - Programme Science – Theory and Approach

- Assessments and Interventions *03*
  - Levels of Gap Analyses
  - Tools and Methods for Gap Analyses
  - Gap Analyses and Technical Interventions for RMNCH+A
- Quality Improvement Through Mentoring Interventions *03*
  - Defining Quality of Care
  - Evidence for Planning
  - Designing Mentoring Interventions for Quality Improvement
- Interventions to Improve Utilization and Coverage *03*
  - Situational Analysis
  - Designing Community Based Interventions

Unit-5: Adolescent Health *12*

- General Considerations in Adolescent Care *03*
  - Normal Physical Growth and Development
  - Psychosocial Development in Normal Adolescents
  - Preventive Healthcare for Adolescents
- Endocrine Problems *03*
  - Abnormal Growth and Development
  - Thyroid Disease in Adolescents
  - Diabetes Mellitus
- Foundations in Adolescent Health Risk Behavior *03*
  - Adolescents at Risk – A Generation in Jeopardy
  - Adolescent and Young Adult Morbidity and Mortality
  - Theories of Adolescent Risk Taking
- Preventing Key Health Risk Behaviors *03*
  - Tobacco Use and Adolescent Health
  - Understanding and Preventing Risks for Adolescent Obesity

Suggested Readings:

1. Hiralal Konar – DC Dutta's Textbook of Obstetrics, 9th Edition, Jaypee Brothers Medical Publishers (2017).
2. Alam, Mamun, Dema – Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCAH): Key Global Public Health Agenda in SDH Era, Chapter In Book: Good Health and Well-Being, 2020 Edition, Springer Link (2020).
3. RE Black – Reproductive, Maternal, Newborn, and Child Health: Disease Control Priorities, 3rd Edition, Volume 2 (2016).

4. Devakumar et al – Oxford textbook of Global Health of Women, Newborns, Children, and Adolescents, 1st Edition, Oxford University Press (2019).
5. Look, Heggenhougen, Quah – Sexual and Reproductive Health: A Public Health Perspective, 1st Edition, Academic Press (2011).
6. Taneja et al – India's RMNCH+A Strategy: Approach, Learnings and Limitations, *BMJ Glob Health,* 2019; 4.
7. Wadhwa et al – Improving Adolescent Health Services across High Priority Districts in 6 States of India, *Indian J Community Med,* 2018; 43 (Suppl 1): S6.
8. Tran et al – Developing Capacities of Community Health Workers in Sexual and Reproductive, Maternal, Newborn, Child, and Adolescent Health, *PLoS One,* 2014.

SEMESTER 3

PHEL-302A: Disease Screening in Public Health

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Provide knowledge about history of diseases and concepts of screening

→ Examine Pre and Perinatal screening tests

→ Provide an understanding of screening for non-communicable diseases such as hypertension and diabetes

Learning Outcomes- Students will be able to-

→ Understand importance of early diagnosis and screening metrics

→ Demonstrate knowledge of successful examples of screening in Down Syndrome and hearing loss

→ Gain knowledge with regard to screening for various risk factors and cancer

→ Be familiar with the use of screening for mental health and disabilities

Unit-1: Introduction to Key Concepts in Screening *12*

- Definition of Screening *03*
- Natural History of Diseases *03*
- Characteristics of Sub-clinical Conditions Allowing Early Diagnosis *03*
- Screening Metrics *03*

Unit-2: Screening in Pregnancy and Newborns *12*

- Key Concepts for Genetic Screening Tests *03*
- Overview of Prenatal and Perinatal Screening *03*
- Example of Improved Screening Test: Down Syndrome *02*
- Example of Screening to Improve Prognosis: Congenital Hearing Loss *02*
- Example of Genetic Screening: Cystic Fibrosis *02*

Unit-3: Screening for Cardio-Metabolic Conditions and Other Diseases *12*

- Hypertension *03*
- Diabetes *03*
- Cardiovascular Risk Factors in Children *03*
- Cancer Screening *03*

Unit-4: Public Mental Health and Screening in Aging *12*

- Introduction to Public Mental Health *03*
- Public Mental Health and Disabilities *03*
- Dementia and Related Disorders *02*
- Old Age Depression *02*
- General Screening in Elderly *02*

Unit-5: Evaluation, Planning, Implementation and Future of Screening Programs *12*

- Major Controversies with Screening Programs *03*
- Evaluation of Screening Programs *03*
- Screening Program Implementation *03*
- Future Direction in Screening Programs *03*

Suggested Readings:

1. Vincenza Snow –Screening for Diseases, 9th Edition, Jaypee Brothers Medical Publishers (2017).
2. Alan S Morrison – Screening in Chronic Disease, 2020 Edition, Springer Link (2020).
3. Walter W Holland, Susie Stewart – Screening in Disease Prevention: What Works?, 3rd Edition, Volume 2 (2016).
4. Thierry Edoh, Pravin Pawar and Sagar Mohammad – Prescreening Systems for Early Disease Prediction, Detection and Prevention, 1st Edition, Oxford University Press (2019).
5. Feuerstein Joseph D, Cheifetz Adam S – Cancer Screening in Inflammatory Bowel Disease: A Guide to Risk Management and Techniques, 1st Edition, Academic Press (2019).

SEMESTER 3

PHEL-302B: Program Planning and Evaluation

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Provide knowledge about health programmes and principles
→ Examine principles of programme design
→ Provide an understanding of planning of health activities

Learning Outcomes- Students will be able to-

→ Understand importance of programme planning
→ Demonstrate knowledge of programme design
→ Gain knowledge with regard to health management technologies

Unit-1 Introduction to Programme Planning

- Concept underlying the design of health programmes
- Principles
- Theories

Unit-2 Programme Design

- Basic approaches to design in health programmes, with a focus on low resource settings
- Analysis and interpretation of studies/ programmes
- Communication in conducting public health research

Unit-3 Health Activities

- Components of planning health activities
- Classification and understanding of various qualitative and quantitative health management technologies
- Role of Niti Ayog and five year plan in development of health sector
- Role of NGOs in health care

Unit-4 National Health Programmes (including current NHP)

- Goals and objectives

- Purposes
- Organization and manpower
- Sources, activities, roles and responsibilities

Unit 5 Evaluation Techniques and Their Applications

- PERT and CPM- meaning, nature, scope
- Importance and methods of monitoring evaluation
- Types, procedures, steps, techniques and principles of evaluation
- Health Audit

References:

1. Health Systems Policy, finance and Organization by Guy Carrin, Kent Buse, Kristaian Heggen Hougen, Stella R Quash

2. Comparative Health Systems: Global perspectives by James A Johnson and Carleen H. Stoskopf

SEMESTER 3

PHEL-302C: Maternal Health

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Provide knowledge about maternal health programmes and principles
→ Examine principles of programme design
→ Provide an understanding of planning of health activities

Learning Outcomes- Students will be able to-

→ Understand importance of programme planning
→ Demonstrate knowledge of programme design
→ Gain knowledge with regard to health management technologies

Unit 1 Foundations of Maternal Health

- Introduction to maternal and newborn health
- Historical development in maternal and child (MCH) in India
- MCH health programmes and their behavioral basis
- Issues in reduction of maternal and neonatal mortality

Unit 2 Preventive concepts in maternal and neonatal health

- Antenatal care
- Prevention of Pre-Eclampsia and Eclampsia
- Interventions to improve preterm birth outcomes
- Prevention of maternal Peripartum infections
- Nutrition and maternal health

Unit 3 Management of Maternal conditions

- Postpartum hemorrhage
- HIV infections
- Malaria

- Tuberculosis

Unit 4 Promotion of Health and Prevention of Illnesses in Newborn

- Care of the newborn immediately after birth
- Postnatal care
- Newborn Immunization
- Management of illnesses in newborn

Unit 5 Maternal and Child Health Programmes

- Introduction
- Assessments and interventions
- Quality improvement through mentoring interventions
- Interventions to improve utilization and coverage

SEMESTER 3

PHIN-301: Summer Internship and Project Report

Total Credits: 08 **Duration: 02 Months**

After End Semester Exams of Semester II, a Two months' internship will be undertaken by all the students with an aim to integrate learning and practice in a hospital. This can be undertaken at governmental or non-governmental organizations or programme management units. The internship shall include the role and support of the student in assessing, monitoring, conducting surveillance of health problems/services; research on health problems; developing and/or implementing policies and intervention strategies to meet health needs. Overall it shall contribute to the organization, and shall help in understanding health management and coordination and gaining personal confidence and leadership experience. After the completion of 2 months of internship, students will be expected to work on all the data collected, analyse, interpret and present it in the form of an Internship Report on the health programme/challenge dealt with, and the solution proposed or implemented, at the end of Semester III.

The Internship is Compulsory and worth 8 Credits. It will be evaluated in two stages.

Stage I: Includes the OSCE Evaluation done by the hospital during the Internship period **(worth 4 credits).**

Stage II: This shall be done at the end of Semester III wherein the student is required to submit 2 copies of the Internship Report at the time of Examination, one of which shall be sent to the Hospital/Institution where the student carried out his/her Internship. The Internship Report shall carry the **Internship Completion Letter*** obtained from the said hospital/institution. The Evaluation Committee shall consist of an External Examiner appointed by the BOS, and the Coordinator or his/her nominee as the Internal Examiner. The student will present his/her work to this 2-member Evaluation Committee which will then provide a 'Grade' **(worth 4 credits).**

SEMESTER 3

PHIER-301: Public Health Ethics and Laws

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ To demonstrate knowledge of ethical theories, principles and concepts relevant to public health and/or health management.

→ To identify ethical issues and tensions in the field of public health, public health policy and/or health management.

Learning Outcomes- After doing this course, students will be able to-

→ Be familiar with Public health Laws and Ethics
→ Analyze rights and policies in Public Health in India
→ Get acquainted with new challenges in Global Health
→ Understanding Public Health Information and Privacy.

Unit-1: Basics of Ethics *12*

- History of Ethics in Health Practice and Research *03*
- Principles of Research and Public Health Ethics *03*
- Ethics in Student, Professional and Organizational Life *03*
- Patient Relationships: Confidentiality and Informed Consent *03*

Unit-2: Public Health Law *12*

- Legislation Related to Health *03*
- Legislation Related to Census, Birth and Death *03*
- Legislation Related to Control of Epidemics *03*
- Legislation Related to Tobacco and Drug Control *03*

Unit-3: Public Health Information and Privacy *12*

- Health Record: Maintenance, Consent and Documentation *03*
- HIPAA Privacy Rule *03*
- Healthcare Privacy Policy in India *03*
- Access, Requests and Disclosure of Health Information *03*

Unit-4: Rights and Policy in Public Health *12*

- Human Rights in Public Health *03*
- Different Theories Useful in Policy Analysis *03*
- Political Nature of Evidence for Policymaking in Health *03*
- Written and Verbal Competence in Communicating Evidence *03*

Unit-5: Addressing Newer Challenges *12*

- Bioterrorism, Conflicts and Emerging Infectious Diseases *03*
- Public Health Law in Global Economy *03*
- Global Health Hazards and Security *03*
- Different Forms of Powers Influential to Policymaking *03*

Suggested Readings:

1. Bernheim et al – Essentials of Public Health Ethics, 1st Edition, Jones and Bartlett Learning (2015).
2. Gostin and Wiley – Public Health Law: Power, Duty, Restraint, 3rd Edition, University of California Press (2016).
3. Bayer R et al - Public Health Ethics: Theory, Policy, and Practice, 1st Edition, Oxford University Press (2006).
4. Gostin and Wiley – Public Health Law and Ethics: A Reader, 3rd Edition, University of California Press (2018).
5. Micahel Grodin et al - Health and Human Rights in a Changing World, 3rd Edition, Routledge (2013).
6. Lisa M Lee – Public Health Ethics Theory: Review and Path to Convergence, *J Law Med Ethics,* 2012; 40.
7. Marckman et al – Putting Public Health Ethics into Practice: A Systematic Framework, Front Public Health, 2015; 3: 23.
8. Abbasi et al – The Evolution of Public Health Ethics Frameworks, *Med Health Care Philos,* 2018; 21 (3): 387.

Semester IV

SEMESTER 4

PHCC-401: Environmental and Occupational Health

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Summarize composition and fate of organic and inorganic chemical matter.

→ To understand principles and application of environmental and occupational health science relative to identifying, evaluating and controlling contaminants and related human exposures.

Learning Outcomes- After doing this course, students will be able to-

→ Develop an understanding of Environmental and Occupational Health

→ Comprehend the steps of Environment Impact assessment and its applications

→ Evaluate different types of environmental disasters and their management

→ Get acquainted with new and emerging challenges in Environmental and Occupational Health.

Unit-1: Introduction to Environmental Health *12*

- Definition, Concept and Components *03*
- Environmental Pollution, Sources, Impacts and Treatments *03*
- Development and Environmental Issues *03*
- Eco-Friendly Environmental Practices *03*

Unit-2: Environment Pollution and Health Impact Assessment *12*

- Concept and Applications *03*
- Steps of Health Impact Assessment *03*
- Types and Applications of Impacts Assessment *03*
- Environmental Disaster – Definition, Types and Management *03*

Unit-3: Introduction to Occupational Health *12*

- Fundamentals of Occupational Health *03*
- Principles and Relevance of Industrial and Occupational Health *03*
- Prevention and Promotion *03*
- Access to Health Services *03*

Unit-4: Occupational Hazards and Diseases *12*

- Occupational Safety and Health *03*
- Occupational Health Disorders and Disease *03*
- Occupational Health of Organized and Unorganized Sectors *03*
- Occupational Health Legislations in India and Implementation *03*

Unit-5: New and Emerging Challenges *12*

- Industrial Hygiene and Psychology *03*
- Ergonomics and Occupational Services at Workplace *03*
- Developing the Occupational Health Workforce *03*
- Environmental Infection Control and Healthcare Settings *03*

Suggested Readings:

1. Robert Friis – Essentials of Environmental Health, 3rd Edition, Jones and Bartlett Publishers (2018).
2. Moeller – Environmental Health, 4th Edition, Harvard University Press (2011).
3. LaDou and Harrison - Current Diagnosis and Treatment: Occupational and Environmental Medicine, 5th Edition, Lange Medical Books (2014).
4. Rom and Markowitz - Environmental and Occupational Medicine, 4th Edition, Lippincott Williams and Wilkins (2015).
5. Smedley, Dick, Sadhra - Oxford Handbook of Occupational Health, 2nd Edition, Oxford University Press (2013).
6. John PA Ioannidis – Meta-Analyses in Environmental and Occupational Health, *Occup Environ Med,* 2018; 75.
7. Morgan et al – GRADE Guidelines for Environmental and Occupational Health, Environ Int, 2019; 128: 11-12.

SEMESTER 4

PHEL-401A: Social Epidemiology

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Recognize the relevance of history and concept of social epidemiology
→ Understand the relationship between education, occupation, ethnicity and health

Learning Outcomes:

After the completion of the Course, the student shall be able to:

→ Describe the theories and models of social epidemiology
→ Understand social determinants of health
→ Learn evaluation of inequalities and disparities in health

Unit 1 Introduction to Social Epidemiology

- Background and History
- Glossary of social epidemiology
- Theories of social epidemiology
- Models of social epidemiology

Unit 2 Social Determinants of Health

- Socio-economic position, education, occupation
- Ethnicity and health
- Measurement of determinants
- Mechanisms and pathways through which income, education and occupation effect health

Unit 3 Inequalities and Disparities in Health

- Poverty, discrimination, vulnerability
- Income inequality and impact on health outcome
- Measuring poverty

- Measuring health inequalities

Unit 4 Ecological Perspectives in Social Epidemiology

- Social capital, social cohesion and health
- Community- level mechanisms/ processes through community social capital contributes to health improvement
- Methods of social epidemiology
- Social comparisons and relative deprivations

Unit 5 Social Epidemiology and Policy

- Concept of prevention on social epidemiology
- Public Health Strategies to reduce health disparities
- Multilevel Approaches: Discussion on approach for research in social epidemiology
- Neighborhood effect studies, stress and health studies

References:

1. Social Epidemiology by Berkman LF, Kawachi I and Glymour MM. Oxford University Press
2. Social Epidemiology by Gwikel Julie. Columbia University press.
3. Social capital and health by Kawachi I, SV Subramanian, Daniel Kin. Springer.

SEMESTER 4

PHEL-401B: Essentials of Health Economics

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Recognize the relevance of economics to healthcare and apply economic reasoning to better understand healthcare and health related issues.

→ Understand the mechanisms of healthcare delivery in India and other countries within broad social and economic contexts.

Learning Outcomes:

After the completion of the Course, the student shall be able to:

→ Describe the healthcare system and identify the reasons why individuals demand healthcare.

→ Understand Health Care markets, Micro and Macro approach in health

→ Learn economic evaluation of health, Capital Cost and various techniques of Cost Analysis.

Unit-1: Introduction to Health Economics *12*

- Overview of the Healthcare System *05*
  - Introduction
  - System Issues
  - Healthcare
  - Health Status
- Role of Economics *07*
  - Introduction
  - Health Economics as a Field of Economics
  - Importance of Health Economics
  - Key Economic Concepts
  - Economic Framework

Unit-2: Health Care Markets *12*

- Competitive Market *04*
  - Introduction
  - Perfect Competition
  - Supply and Demand

- Noncompetitive Market Models and Market Failures *04*
  - Introduction
  - Externalities
  - Public Goods
  - Information Imperfections
- Role of Government *04*
  - Theories of Government Intervention
  - Forms of Government Intervention

Unit-3: Demand *12*

- Demand for Health *03*
  - Introduction
  - Health as a Form of Human Capital
  - Factors That Affect the Investment in Health
- Demand for Healthcare *03*
  - Introduction
  - Asymmetry of Information and Imperfect Agency
  - Aggregate Demand for Healthcare
- Market for Health Insurance *03*
  - Insurance Market
  - Employer Based Insurance
- Health Disparities *03*
  - Introduction
  - The Obesity Epidemic

Unit-4: Supply *12*

- Healthcare Supply *03*
  - Introduction
  - Nature of Supply
  - Elasticity of Supply
- Healthcare Production and Costs *03*
  - Nature of Production
  - Short-run Costs for a Medical Firm
  - Long-run Costs
- Healthcare Workforce Market *03*
  - Introduction
  - Physician's Market

- Result of Changing Incentives
- Technology Transfer in Healthcare *03*
  - Technology in Healthcare
  - Technological Change

Unit-5: Evaluating the Healthcare System *12*

- Economic Evaluation Methods *03*
  - Introduction
  - Purpose of an Economic Evaluation
  - Types of Economic Analyses
- Comparing Healthcare Systems *03*
  - Introduction
  - Elements of a Healthcare System
  - Various Healthcare Systems
- International Health System Issues and Reforms *03*
  - Common Health Issues Across Countries
  - Scaling up International Health
- Public Policy and Health Economics *03*
  - Introduction
  - Market Based System

Suggested Readings:

1. S Glied and Peter C Smitt – The Oxford Handbook of Health Economics, 1st Edition, Oxford University Press (2013).
2. Pauly MV, Thomas G Mequire, Pedro P Barros – Handbook of Health Economics, Volume 2, 1st Edition, North Holland (2011)
3. Diane M Dewar - Essentials of Health Economics, 2nd Edition, Jones and Bartlett Learning (2015).
4. J Bhattacharya, Timothy Hyde, Peter Tu – Health Economics (E-book), Palgrave Macmillan Publishing (2013).
5. M F Drummond et al – Methods for the Economic Evaluation of Health Care Programmes, 4th Edition, Oxford University Press (2015).
6. Clark et al – Discrete Choice Experiments in Health Economics: A Review of the Literature, *Pharmacoeconomics.*
7. Spiegel et al – The Quality of Published Health Economic Analyses in Digestive Diseases: A Systematic Review and Quantitative Appraisal, *Gastroenterology,* 2004.
8. KJM Niven – A Review of the Application of Health Economics to Health and Safety in Healthcare, *Health Policy,* 2002; 61.

9. Luhnen et al – Systematic Reviews of Health Economic Evaluations: Protocol for a Systematic Review of Characteristics and Methods Applied, *Syst Rev,* 2017; 6: 238.
10. Ammerman et al – Health Economics in Public Health, *Am J Prev Med,* 2009; 36 (3): 273.
11. Scott et al – A systematic review of existing reviews on community health workers, *Hum Resour Health,* 2018; 16 (1): 39.

SEMESTER 4

PHEL-401C: Gender Issues and Health

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Recognize the impact of gender differenced and patriarchy on health
→ Understand the concepts of equity and equality and impact of social exclusion on health

Learning Outcomes:

After the completion of the Course, the student shall be able to:

→ Describe the difference between gender equality and equity
→ Understand the difference between sex and gender and their relation to health
→ Learn methods to reduce barriers and help socially excluded groups

Unit 1 Gender and Health I

- Define concepts- Gender, gender differences, patriarchy
- Vulnerable populations
- Gender equality and equity
- Emerging issues

Unit 2 Gender and Health II

- Understand the difference between equity and equality
- Understand different forms of social exclusion
- Difference between sex and gender
- How these variables combined with other forms of social exclusion impacts on health

Unit 3 Barriers in Women and Health

- Identify and reduce barriers
- Needs of women and socially excluded groups
- Promoting access to health care and related information

Unit 4 Gender Perspective in Public Health in India

- Inter-sectionalism between gender and other types of social exclusion / inclusion
- Realities of discrimination from the grass root perspective
- Patients' experiences in accessing and utilizing health services
- Impacts on uptake and utilization of services

Unit 5 Miscellaneous

- Gender and sexuality
- HIV/ AIDS- social and structural contexts of HIV vulnerability
- Identify good practices in Gender and Social Inclusion (GSI) in public health
- Toolkits for including GSI in public health programs, policies and advocacy

References:

1. Sex/ gender: Biology in social world by Fausto- sterling Anne. Routledge

2. Gender and Health: Relational, inter-sectoral and biosocial approaches in social science and medicine by Springer KW , Hankivsky O, Lisa M, Bates LM.

SEMESTER 4

PHEL-402A: Information Technology in Public Health

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Understand the concepts and principles of health informatics
→ Recognize the impact of computer technology in public health

Learning Outcomes:

After the completion of the Course, the student shall be able to:

→ Describe the components of health informatics
→ Understand the fundamentals of computer and information system

Unit 1 Introduction to Public Health Informatics

- Overview of public health informatics
- Principles of health informatics
- Components
- Health informatics

Unit 2 Fundamentals of Computers

- Basics of computer and its elements
- Memory devices
- Storage devices
- Data base management system

Unit 3 Information System

- Introduction
- Types of information systems
- Organization and strategy
- Design, building information system, planning and development

Unit 4 Public Health Informatics

- Information architecture
- Core competencies
- Assessing the value of information system and software development
- Privacy, confidentiality and security of public health information

Unit 5 Application of Public Health Information System

- National vital statistic system
- Risk factor information system
- Immunization registries
- Telehealth and telemedicine
- M- health and use of mobile technology

References:

1. Public health informatics and information systems by Patric W O Carroll, William A Yanoff, Elizabeth M Ward , Laura H Ripp. Ernest l Martin.

2. Data base management systems by Raghu Ramakrishanan and Johannes Gehkke.

3. Health informatics: practical and guide for health care and information technology professionals by Robert E Hoyt.

SEMESTER 4

PHEL-402B: Communication and Training in Health

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Understand the meaning and concept of communication
→ Recognize the functions and barriers of health communication

Learning Outcomes:

After the completion of the Course, the student shall be able to:

→ Describe the process and types of communication
→ Understand the role of IEC communication in health education

Unit 1 Communication

- Meaning
- Concept
- Process of communication
- Channels and types of communication

Unit 2 Health communication

- Functions
- Barriers
- Health education
- Role of IEC communication
- Behavioral change communication

Unit 3 Public health communication

- Meaning , nature and philosophies of health intervention
- Level of interventions in health
- Intervention strategies

- Communication campaigns

Unit 4 Training in health

- Basic concepts of training
- Principles of training
- Theories of training
- Training needs assessment

Unit 5 Training Process

- Training process
- Importance of monitoring and evaluation in training
- Appraisal of the monitoring and evaluation systems of different health training institutes and programmes

References:

1. Communication skills training for health professionals by David A Dickson.
2. Health communication: From theory to practice by Renata Schiavo. Jossey- Bass.
3. Public health communication: critical tools and strategies by Claudia Parvanta, David E Nelson. Jones and Bartlett.

SEMESTER 4

PHEL-402C: Child and Adolescent Health

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ Understand the determinants of growth and anthropometrical measurements
→ Recognize the important milestones in infancy and childhood

Learning Outcomes:

After the completion of the Course, the student shall be able to:

→ Describe the process of normal growth and growth monitoring
→ Understand the role of immunizations in child survival

Unit 1 Growth and Development in Children

- Determinants of growth
- Anthropometrical measurements
- Normal growth
- Growth curve, growth chart and growth monitoring

Unit 2 Behavioral development and child health care

- Milestones in infancy
- Milestones in childhood
- Infectious disease and child survival
- Immunizations

Unit 3 Adolescent Health I

- Definition- adolescence, pubescence
- Stages of development and their disorders
- Health services for adolescents
- Adolescence –sexual and reproductive health

Unit 4 Adolescent Health II

- Social context of adolescent health and development
- International Adolescent health
- Adolescent health status in India

Unit 5 Adolescent Health Programs and Policies

- Adolescent health programmes, FLE Act
- Adolescent health development- policy and systems

References:

1. Textbook of adolescent health care by Martin M, Fisher MD FAAP, Elizabeth M Alderman and Richard Kreipe. American Academy of Paediatrics.

2. International handbook on Adolescent Health and Development by Mary E Dillon, Andrew l Cherry and Valentina Baltag. Springer.

3. Child and Adolescent Health and Health care quality by Institute of medicine and National Research Council.

SEMESTER 4

PHMT-401: Master Thesis and Viva-Voce

Total Credits: 08

Course objectives

It will be a unique opportunity for the students to study intensively a public health question of their interest. They will have to make a choice from the available titles from which the preferred choices will be made and then work on it in the guidance of a teacher.

Aims

- Literature searching to research a specific scientific topic.
- Interpretation and analysis of scientific literature.
- Scientific writing to enable production of a comprehensive literature review.
- Allow students to explore in depth a topic that is of interest to them.

Learning outcomes

Students will be able to-

- understand in depth a scientific area of interest
- critically appraise research papers
- develop literature searching and scientific writing skills
- develop lay writing skills (abstract)
- develop organizational and time management skills
- develop oral presentation skills (in tutorials)
- develop written and oral communication skills

Subject Areas for Dissertation

MPHC402A Epidemiology
MPHC402B Biostatistics
MPHC403C Biological Clock and Human Health
MPHC403D Health System Management
MPHC403E Health Programme, Policy and Planning
MPHC403F Reproductive and Maternal Health
MPHC403G Public Health Nutrition
MPHC403H Health Economics and Financing

Allotment and Evaluation of Dissertation will be done in Semester III and Semester IV, respectively.

The student will submit Dissertation preferably supported by short publications, which could be either a review and/or original research work.

The Dissertation will be evaluated at the end of Semester IV in two stages. **The Dissertation is of 8 Credits.**

Stage I: The Evaluation Committee will consist of Supervisor, one Senior Faculty Member and the Coordinator. After evaluation, this three member committee will provide 'Grade' which will cover 70% of the total marks.

Stage II: The student will present his/her work to the External Examiner appointed by the BOS and will cover 30% of the total marks.

SEMESTER 4

PHIRA-401: Mental Health

Total Credits: 04 **Teaching Hours: 60**

Objectives:

→ To epidemiologically describe the burden of mental illness on society.

→ Apply the theories and evaluate available empirical evidence on determinants of mental health.

→ To design and critique interventions intended to promote mental health.

Learning Outcomes- After doing this course, students will be able to-

→ Understand the concept of Mental Health and Mental Illness

→ Comprehend rationale of intervention at primary, secondary and tertiary levels

→ Evaluate empirical evidence on the determinants of mental health in vulnerable groups.

→ Be familiar with Mental Health Act and programme for socially excluded group.

Unit-1: Introduction to Mental Health *12*

- Concept of Mental Health and Mental Illness *03*
- Mental Health Movement *03*
- Laing, Foucault and Patel *03*
- Myths and Stigmas about Mental Illness *03*

Unit-2: Understanding Mental Illness *12*

- Classification of Mental Illness: DSM-IV, 5 and ICD-10 *03*
- Anxiety Disorders: GAD, OCD, PTSD and Phobia *03*
- Mood Disorders and Major Depressive Disorders *03*
- Bipolar Disorders *03*

Unit-3: Sociocultural Context and Deviance *12*

- As Detrimental Factors: Poverty, Beggary and Crime *03*
- Social Exclusion and Substance Abuse *03*
- Models of Mental Health *03*
- Intervention at Primary, Secondary and Tertiary Levels *03*

Unit-4: Mental Health in Contemporary India *12*

- Mental Health and Gender-Based Violence *03*

- Mental Health and Elders *03*
- Mental Health of Children and Adolescents *03*
- Problems in Using Mental Health Services *03*

Unit-5: Mental Public Health *12*

- Mental Health Act, Mental Health Bill *03*
- NMHP and DMHP *03*
- School Mental Health Programme *03*
- Government Initiatives for Socially Excluded Groups *03*

Suggested Readings:

1. SJ Korchin – Modern Clinical Psychology: Principles of Intervention in the Clinic and Community, 2004 Edition, CBS Publishers and Distributors (2004).
2. Eaton and Fallin – Public Mental Health, 2nd Edition, Oxford University Press (2019).
3. W Vimala Samson – Practical Guide to Mental Health Nursing, 1st Edition, Jaypee Brothers Medical Publishers (2011).
4. Levin, Hennessy, Petrila – Mental Health Services: A Public Health Perspective, 3rd Edition, Oxford University Press (2010).
5. Kohrt and Mendenhall – Global Mental Health: Anthropological Perspectives, 1st Edition, Routledge (2015).
6. Misra et al – 'Global Mental Health': Systematic Review of the Term and its Implicit Priorities, BJPsych Open, 2019; 5.
7. Proper and Oostrom – Effectiveness of Workplace Health Promotion Interventions on Physical and Mental Health Outcomes, *Scand J Work Environ Health,* 2019; 45.