Syllabus and Examination Scheme

For

DIPLOMA IN PUBLIC HEALTH

Department of Microbiology

Chaudhary Bansi Lal University, Bhiwani

(A State University established under Haryana Act No. 25 of 2014)

(2021-22)

CBLU/DPH/2021-22

Diploma in Public Health

Duration 1 year (two semesters)

Credit 40

Marks 1000

Eligibility for admission: B.Sc. Bio-Sciences/ Life Sciences/ 10+2+3 (any branch with biology) MBBS /BDS/ any other equivalent bachelor degree in medical branch.

Seat: 20

Mode of Lectures: online/offline

Duration of diploma course: 1 year

Duration of certificate course: After completion of the 1st semester

Fee: INR. 15,000/- + Usual charges for one year.

Program Specific Outcomes

Learning Objectives:

Most of us hardly think before commencing or arrival of any kinds of crisis such as flood, storming, rock sliding, wild fire, gas leak, earthquake including hurricane. Water pollution, drug resistance, vaccination, disease out-break, disease detection, Zoonotic diseases awareness and control program, communicable and non-communicable disease control & prevention and much more, is thought to be by a program holder with public health.

Learning Outcomes:

Experiences with a concrete foundation in issues that have impacts on population health, health care system; environmental health, disease prevention, health epidemiology, health informatics, global health, medical ethics along with cultural and behavioral issues may be far sighted and neutralized through studying public health courses which may prove to be an asset in self-job orientation, job providers and entrepreneurship development in diversified fields of job opportunities.

Note: In this diploma course, exit-entry provision is there, the fee charged shall not be refunded and on re-entry after a year they have to pay complete fees for re-admission to complete the course.

Examination scheme /Question Paper Structure

1. The question paper shall consist of nine questions. The weightage for each question shall be sixteen marks. Out of which, first question shall be of short answer type and compulsory. Question no. one, shall contain 8 parts representing all units of the syllabus and students shall have to answer all parts.
2. The remaining 8 questions shall have internal choice.
3. Qualifying marks 40 per cent

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Chaudhary Bansi Lal University, Bhiwani

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Study & Evaluation Scheme Of Diploma in Public Health

Summary

Programme : Diploma in Public Health
Duration : One year (Two Semesters)
Minimum Attendance Required : 75%
Total Credits : 40

Assessment/Evaluation of Theory examination:

Internal Marks	Major Test (End Semester Exam) Marks	Total Marks
20	80	100

Internal Evaluation:

Minor Test Marks	Attendance Marks	Assignment/ Quiz Marks	Total Marks
10	5	5	20

Duration of Examination:

Minor Test (Internal)	Major Test (External)
1-2 hrs.	3 hrs.

To qualify the course, a student is required to secure a minimum of 40% marks in aggregate including the internal evaluation and Major Test (End Semester Examination). A candidate who secures less than 40% of marks in a course shall be deemed to have failed in the course. The student should have obtained at least 40% marks in aggregate to qualify the semester.

Training Program **Max.Marks-100**

Objective: The main goal is to expose the students towards basic medical intervention in a Laboratory/field or any other relevant area. In addition, the students will also learn about basic testing procedures in a medical testing laboratory.

This course aims (not limited to):

- To Learn the Public health policies and community resources.
- To manage the health of populations and a personal panel of patients.
- To produce competent and independent practicing internists that have the ability to care for patients.

Proper guidance will be given to the students by the teachers/In-charge/Resource Person.

Distribution of Marks	**(Total 100)**
a) Project report:	**50 Marks**
b) Seminar :	**50 Marks**
- Content:	**25**
- Way of presentation:	**10**
- Knowledge and skill:	**10**
- Viva-voce:	**5**

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SEMESTER I **CREDITS: 20** **MARKS: 500**

Sr. No	Paper Code	Subjects	Type of Course	Contact hours per week			Credits			Examination Scheme			
				Theory	Practical	Total	Theory	Practical	Total	Internal Assessments	Theory	Practical	Total
1	21DPH101	General Public Health	CC	04	-	04	04	-	04	20	80	-	100
2	21DPH102	Human Biology and Immunology	CC	04	-	04	04	-	04	20	80	-	100
3	21DPH103	Basic Biostatistics and Computer Applications	CC	04	-	04	04	-	04	20	80	-	100
4	21DPH104	Public Health and Nutrition	CC	04	-	04	04	-	04	20	80		100
5	21DPH105	**Lab course (Health diagnostics)**	CC	-	08	08	-	04	04	-	-	100	100
	TOTAL			**16**	**8**	**24**	**16**	**4**	**20**	**80**	**320**	**100**	**500**

C.C = Core Course

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SEMESTER II **CREDITS: 20** **MARKS: 500**

Sr. No	Paper Code	Subjects	Type of Course	Contact hours per week			Credits			Examination Scheme			
				Theory	Practical	Total	Theory	Practical	Total	Internal Assessments	Theory	Practical	Total
1	21DPH201	Maternal and Child Health	CC	04	-	04	04	-	04	20	80	-	100
2	21DPH202	Epidemiology of Non-Communicable Diseases	CC	04	-	04	04	-	04	20	80	-	100
3	21DPH203	Epidemiology of infectious Diseases	CC	04	-	04	04	-	04	20	80	-	100
4	21DPH204	Communication and Counseling: Report and Records	CC	04	-	04	04	-	04	20	80		100
5	21DPH205	Training Program	CC	-	08	08	-	04	04	-	-	100	100
	TOTAL			**20**		**20**	**16**	-	**20**	**320**	**80**	**320**	**500**

C.C.= Core Course

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Semester I

21DPH 101
General Public Health

Maximum Mar
Theory Examinat
Internal Assessn
Time

Objective: The purpose is to teach the students about general public health, control measure and prevention of diseases.

Outcome: Students will gain knowledge of fertility, mortality and migration rate, different kind of disease found in population and importance o care products.

Unit I

General health and its determinants: genetics, behavior, environment and physical influence, medical care and social factors. Public health: phys mental health, sanitation, personal hygiene, disease control of communicable and non-communicable diseases.

Unit II

Overview of current national health policies, national health programs organized by World Health Organization (WHO), World Bank (WB) Nations Children's Fund (UNICEF), centers for disease control and prevention (CDC), National Institute of Health (NIH) USA and their health p strategies.

Unit III

Population health management, morbidity, disease management, Chronic diseases symptoms. Public health law and ethics, human rights in public role of governments in managing health of people.

Unit IV

Public health system in India. Goals, objectives, purposes, activities, roles and responsibilities of national health mission (NHM), Ayushman ministry of health and family welfare.

Suggested readings:

1. Oxford textbook of Public Health Ed. Roger Deters, James McEwen, Robert Beagle hole, and Heinz Tanaka, Oxford University Press (OUP) 4th Edition: 20
2. Public Health at the Crossroads – Achievements and Prospects Ed. Robert Beagle hole and Ruth Bonita, 2nd Edition, Cambridge University Press.
3. Maxcy-Resenae- Last Public Health & Preventive Medicine Ed. Robert Wallace, MD and Neal Kohatsu,
4. Handbook of Population: Ed. Dudley Poston and Michael Macklin. Springer publication, 2006

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21DPH 102
Human biology and Immunology

Maximum Marks: 100
Theory Examination: 80
Internal Assessment: 20
Time: 3 hrs

Objective: To provide an understanding of basic structure and function of the human body and immunity

Outcome: Students will get knowledge of different stages of human life cycle, complement system, adaptive immunity and hypersensitivity.

Unit-I

Human life cycle: growth and development, cells and tissues of the human body, homeostasis, structure and function of organs and systems; musculo-skeletal, cardiovascular, respiratory, and digestive

Unit-II

Structure and function of urino-genital, nervous system, and hormones, basic concepts in innate and adaptive immunity, immune organs and cells involved in immunity; components of the immune system, innate immunity: different lines and layers of defense

Unit-III

Complement system, MHC system, the structure of a typical antibody molecule, interaction between the antibody and specific antigen, monoclonal antibody, cytokines, autoimmune diseases (Type 1 diabetes, Rheumatoid arthritis, Grave's disease).

Unit-IV

Hypersensitivity, immunology of selected infectious diseases of public health importance, applications of immunology in diagnosis and management of common diseases (HIV and Tuberculosis).

Suggested reading:

1. Essential Immunology: - Ivan Roitt, Blackwell scientific publications, London Edinburgh Boston, Australia, 1997.
2. Immunology: Janis Kuby, W.H. Freeman and company, U.S.A.1992.
3. Immunobiology: The immune system in health and disease: J. Travers, current biology pub, New York, 1997.
4. Textbook of Medical Physiology: A. C. Guyton, Prism Books Pvt. Ltd., Bangalore.

21DPH 103
Public Health and Nutrition

Maximum M
Theory Examin
Internal Asses
Ti

Objective: To teach the students basic principles of nutritional epidemiology, dietary and nutrient intake analysis.

Outcome: The students will develop understand about different nutrient values and their deficiency diseases.

Unit I

Define the concept, purpose and scope of public health and nutrition, BMI, nutritional problem in India; protein energy malnutrition (PEM), iron anemia, Vitamin deficiency and Iodine deficiency disorders.

Unit II

Strategies and invention applied to overcome the nutritional problems, diet and food based strategies (fortification and dietary diversification), based approach (nutrient supplementation) and medical approaches.

Unit III

Nutrition programme operating in India: integrated child development services (ICDS), nutritional deficiency control programme, food supplc programme like the mid-day meal programme, food security programme.

Unit IV

Health care, Primary health care (diagnostic and treatment of a health condition), primary health care, Urban primary health centre model, prim care in tribal areas, secondary health care, tertiary health care, national level tertiary health care: Mukhya Mantri Mufat Ilaj Yojana (MMMIY).

Suggested reading:

1. Willett, W. (2012). Nutritional epidemiology. Oxford University Press.
2. Margetts, B. M., & Nelson, M. (Eds.). (1997) Design concepts in nutritional epidemiology. OUP Oxford.
3. Frisancho, A. R. (1990). Anthropometric standards for the assessment of growth and nutritional status. University of Michigan Press.
4. Cohen, B. E. (2002). Community food security assessment toolkit (pp. 02-013). Washington, DC: US Department of Agriculture, Research Service.

21DPH 104
Basic Biostatistics and Computer Applications

Maximum Marks: 100
Theory Examination: 80
Internal Assessment: 20
Time: 3 hrs

Objective: The course is aimed to train students in basic statistical knowledge in biology.
Outcome: Students will develop better understanding of statistical data analysis.

Unit-I

Computers: Components and functions; generations of computer; input and output devices; types of memory; file manager; internet and its applications.

Unit-II

Operating system and its evolution; system and application software; Office applications including MS-Word, MS-Excel, MS-Powerpoint.

Unit-III

Introduction to biostatistics: Measures of central tendency: Mean; median; mode; quartile and percentile. Measures of dispersion: range; mean deviation; standard deviation; merits, demerits and uses of standard deviation. Variables and constants; variables in biology. Graphical presentation of data.

Unit-IV

Test of significance: T-test, F- test, Chi-square test, ANOVA, Parametric and non-parametric test; Correlation and regression analysis.

Suggested reading:

1. Statistics for Social sciences: T. Rajaretnam, Sage publication. New Delhi.
2. An Introduction to Biostatistics: A manual for students in Health Sciences: P.S.S. Sundar Rao, J. Richard Prentice Hall, New Delhi.
3. Zar, J.H., Biostatistical Analysis, Pearson Education.
4. Bhise, S.B., Textbook of computer applications and biostatistics, Trinity Publishing house.

21DPH 105
Health Diagnostics (Lab course) **Maximum Ma**
Ti

Objective: To teach the students for different diagnostic techniques like Gram staining, biochemical testing, and molecular biology

Outcome: Students will get practical knowledge of various techniques in Lab.

List of Practicals

1. Microbiology –Gram' staining, microbial growth curve, culture, antibiotic susceptibility testing, endospore staining.
2. Haematological methods; Total Leucocyte count (TLC), Differential Leukocyte Count (DLC), Erythrocyte sedimentation rate (ESR), Urine t
3. Biochemistry; carbohydrate, protein, lipid estimation; measurement of hemoglobin
4. Immunology: ELISA, Immunoprecipitation assay and Radioimmunoassay.
5. Environmental measures: Water quality testing: Physical test (indicate properties detectable by the senses), Chemical test (amount of m organic substances that affect water quality), Bacteriological tests (presence of bacteria, characteristic of faecal pollution), Study of vec diseases
6. Molecular biology: DNA isolation, Polymerase Chain Reaction and electrophoresis.
7. Enzymatic assay: Lactase dehydrogenase, alkaline phosphatase, superoxide dismutase assay.

Suggested reading:

1. Textbook of Medical Laboratory Technology, P.B. Godkar, Balani publishing, House Bombay.
2. Basic laboratory Methods in Medical Bacteriology, WHO, Geneva.
3. Microbiology Practical Manual, Ed. Shukla Das and Rumpa Saha. CBS Publication.
4. Medical Microbiology: A guide to microbial infections: Pathogenesis, Immunity, Laboratory Diagnosis and Control Ed. David Greenwood, Slack, John Peutherer and Mike Barer.

Semester-II

21DPH 201
Maternal and Child Health

Maximum Marks: 100
Theory Examination: 80
Internal Assessment: 20
Time: 3 hrs

Objective: To teach students about essential constituents of maternal and child health and health care programme.
Outcome: Students will get knowledge of Antepartum, Postpartum, Immunization and Child nutrition, Policy and Programs.

Unit-I

Burden of reproductive ill-health: unintended pregnancies, unsafe abortions, Medical termination of Pregnancy (MTP) act, non-sexually transmitted infections, infertility, violence against women.

Unit-II

Gametogenesis, fertilization, implantation, Fetus development, Contraception, sterilization, population control. preconception period, maternal and paternal risk factors for maternal and fetal outcomes.

Unit-III

Antepartum – antenatal care and significance, physiological changes during pregnancy, complications of pregnancy, high risk pregnancy, Intra-partum-stages of labour and delivery, components of labour, danger sign and management of labour complications of labour and delivery.

Unit IV

Birth defects, common morbidities among young children, lower respiratory tract infections, diarrhea and vaccination programme, Adolescent Health and development, Adolescent Health status in India: Policy and systems.

Suggested reading:

1. Kotch Jonathan B. Maternal and Child Health: Programs, Problems, and Policy in Public Health, Ed. Jones & Bartlett, ISBN-13: 978-1449611590
2. Ehiri John (Ed.) Maternal and child health: Global challenges, programs and policies. Springer-Verlag US 2009
3. Dutta D C. Textbook of Obstetrics: Including Perinatology and Contraception. Jaypee Brothers Medical Publisher Ltd. New Delhi. 2016
4. Global Maternal and Child Health, Ed. Schwartz, David A., ISBN: 2522-8382, Springer

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21DPH 202

Epidemiology of Non-Communicable Diseases

Maximum M:
Theory Examin:
Internal Assess
Ti

Objective: To provide the knowledge about non-communicable diseases, their control and other preventive measures.

Outcome: The students will have knowledge of common disorders like Diabetes, Asthma, and Obesity etc.

Unit I

Epidemiology, risk factors, global status, prevention and control of non- communicable disease (NCD): diabetes, cardio-vascular diseases, asthma, addiction and COPD.

Unit II

Treatment (emphasize pharmacological component) and prevention: diabetes, cardiovascular diseases, asthma and coronary obstructive pulmonar (COPD), cancer. Other risk factors for non- communicable disease.

Unit III

Introduction to mental health, mental health illness, symptoms. Causes: inherited traits and environmental exposures before birth, risk complications.

Unit IV

Detection, control and prevention of Schizophrenia, Alzheimer's, Parkinson's, Senile dementia and suicides.

Suggested readings:

1. World Health Organization (2016). Global Report on Diabetes, WHO Press, Switzerland
2. National Centre for Disease Control, Director General of Health Services, Ministry of Health and Family Welfare, GOI 2017. Training M Medical Officers for Prevention, Control and Population Level Screening of Hypertension, Diabetes and Common Cancer (Oral, Breast and Ce
3. World Health Organization 2014: "GLOBAL STATUS REPORT" on Non-Communicable Diseases.
4. Global Handbook on non-communicable diseases and Health promotion ed. David V. Mcqueen, Springer, 2013

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21DPH 203
Epidemiology of Infectious Diseases

Maximum Marks: 100
Theory Examination: 80
Internal Assessment: 20
Time: 3 hrs

Objective: To understand the biology of pathogens, pathogenesis, manifestation and mode of disease transmission.

Outcome: Students will learn critical evaluation of various disease control program.

Unit I

General overview of infectious diseases and their impact in developing and under developing nations. Overview, objective, role and responsibilities of infectious disease controlling programme; national vector borne disease (NVBDCP), national tuberculosis control programme (NTCP).

Unit II

Anti-microbial agents, drug resistance, clinical presentation and management; public health strategies and mechanisms. Symptoms, causative agent, prevention and control of polio, diphtheria and tetanus.

Unit III

Epidemiology, symptoms, causative agent, prevention and control; measles, dengue, typhoid, mycosis, tuberculosis, Covid -19, Diarrhea, typhoid, worm infestations and Cholera and viral hepatitis.

Unit IV

Symptoms, causative agent, prevention and control STIs, AIDS, Syphilis and Toxoplasmosis; Vector borne: malaria and filaria, Japanese encephalitis, dengue, zoonotic: rabies, Ebola and Zika virus diseases.

Suggested reading:

1. World Health Organization: Report on infectious diseases, and Report on Multidrug resistance, 2017, World Health Organization, Geneva
2. Principles and Practice of Medicine: Davidson, Edward, Bouchier et al., Pearson Professional Ltd. London
3. Biology of Disease: Jonathan Phillips, Paul Murray, Blackwell Science Ltd. Australia
4. Comprehensive Textbook of Infectious diseases, Ed.MI Sayenna A Uduman, Jaypee digital, New Delhi.

8/10/2021 8/10/21 15 Research 05/10/2021 Vibha Ahuja

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21DPH 204
Communication and Counseling: Report and Record

Maximum Mari
Theory Examinati
Internal Assessn
Time

Objective: To teach the students about group communications, messaging, and methods of counseling and how to overcome our inability.

Outcome: Students will understand of maintenance of records for the control of communications and non- communicable disease under nationa program and scientific skills

Unit-I

Communication in public health management: definition, two-way communication (vertical and horizontal communication), Verbal and no communications, strategies/ approaches in communication (individual, group and mass communication).

Unit-II

Planning, implementation and evaluation of health communication programme (communication needs assessment, planning and evaluation), communication strategy in reproductive and child health programme (RCH).

Unit-III

Define counseling, methods and techniques of effective counseling, communities counseling, marriage and family counseling, educational co rehabilitation, mental health and substance abuse counseling.

Unit-IV

Records maintenance for the control of communications and non- communicable diseases under national health program (malaria, TB, leprosy, t control etc.),

Suggested readings:

1. Counselling and Communication Skills for Medical and Health Practitioners Ed, Rowan Bayne, Paula Nicolson and Ian Horton. Willey.
2. Teaching and Learning Communication Skills in Medicine.Ed. Suzanne Kurtz, Jonathan Silverman, Juliet Draber, Janvan Dalen, Frederic W CRC Press, London.
3. Counselling for maternal and new born health care, WHO, ISBN: 978 9241547628
4. Medical records manual: guide for developing countries, WHO, 9290610050

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Training Program **Total marks: 100**

Objective: The main goal is to expose the students towards basic medical intervention in a Laboratory.

Outcome: The students will learn about basic testing procedures of a medical testing laboratory.

Students of diploma in public health will undergo a rigrous training in a human health related testing laboratory/ medical/ institutes or epidemiolical survey/field work of various diseases for a period of 45 days. The students will maintain a daily record of procedure learning and present their learning procedures through PowerPoint presentation under strict scrutiny of supervisory staff members/ external examiner. Students will submit a hard binding training report of their health related testing observation and results.

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