

Course Title	Introduction to Public Health	
First Year	Second Semester	Course code: BPH 102.1 IPH
Credit Hours: 3	Full Marks: 100	Pass Marks: 50

Course Description:

The course offers an opportunity to develop a holistic understanding of context and scope of public health, including philosophy, definition and historical development of public health in national and international context. The course attendant will learn the clear concept of health, disease, spectrum of health and disease, preventive health and levels of prevention. The course is expected to help students to understand the meanings of community health, community medicine and curative medicine, national and international public health problems, burden of problems as well as the effects of those problems on health. The course attendant will learn different national efforts and international declarations as significant forces influencing public health.

Learning Objectives:

Upon the successful completion of the course, the students will be able to:

- Explain the meaning of public health, its philosophy, scope and ethics.
- Identify the historical development of public health and ways.
- Demonstrate holistic understanding of health, disease and preventive health.
- Explore the current national and international public health problems and issues
- Explore national efforts and international declarations as significant forces influencing public health.

Course Contents

Unit 1: Introduction to Public Health

24 Hours

- Concept, definition, philosophy and scope of public health

2 Hours

- **Historical development of public health**

10 Hours

- Public health in the global context (4 hr)
 - The Pre-Christian period
 - The middle ages
 - The age of the black death
 - The Renaissance period
 - The 18th and 19th centuries (enlightenment period)
 - Modern age
- Public health in Nepalese context. (6hr)
 - Ancient and pre-unified period
 - After Unification and during Rana period

- From 2007 and during Panchayat period
- After 2047 BS

- **Concept of health and Diseases** **4 Hours**
 - Concept of health -1/2 hr
 - Concept of diseases -1/2 hr
 - Concept of being healthy-1 hr
 - Spectrum of Health and Disease-1 hr
 - Natural history of disease-1 hr

- **Preventive health and levels of prevention** **6 Hours**
 - Concept of Prevention
 - Concept of Preventive Health
 - Level and scope of preventive health
 - Primordial Prevention
 - Primary Prevention
 - Secondary Prevention
 - Tertiary Prevention

- **Concept of community health, community medicine and clinical medicine 2 Hour**
 - Concept of Community Health
 - Concept of Community medicine
 - Concept of Clinical Medicine
 - Relation and difference between them

Unit 2: Situation and Efforts in Public Health **24 Hours**

- **Interdisciplinary Approach in Public Health** **6 Hours**
 - Epidemiological approach
 - Biostatistics Approach
 - Public Health Laboratory Science Approach
 - Sociological and Anthropological Approach
 - Cultural and Behavioral Approach
 - Environmental Health Approach
 - Veterinary Science Approach

- **National and International Public Health Problems** **6 Hours**
 - Current International Problems, Burden and Effects
 - Mental health, Psychiatry problems and Addictive Problems
 - Adolescents and reproductive health Problems

- Major communicable and Non-communicable Diseases
 - Emerging Health Problems such as HIV and AIDS, and others
 - Re-emerging Health Problems such as Malaria and others
 - New mores and New Freedoms
 - Economically and Culturally Deprived Population
- **Public health problems and Issues in Nepal** **4 Hours**
 - Communicable Diseases (types, burden causes and effects)
 - Non-communicable Diseases (types, burden causes and effects)
 - Nutritional Deficiency Disorders (types, burden causes and effects)
 - Trauma and Injuries (types, burden causes and effects)
- **Significant Forces Influencing Public Health** **8 Hours**
 - Public Health in National Planning of Nepal
 - Public health programs in Nepal
 - Efforts on Health Awareness and Health Habits
 - Roles of Resolution of Selected International Conferences Related to Health
 - Alma Ata Declarations
 - ICPD (Cairo) Declarations
 - Beijing Conference Declarations
 - HABITAT 2nd (Istanbul, 1996) Declarations
 - SAARC Declarations
 - MDGs
 - Other Subsequent Health Related Declarations

Teaching Learning Methods

Teaching learning method of this course include didactic lectures, group work, Discussion in class room setting and paper presentation by students under direct guidance of course facilitator.

Evaluation

Internal Assessment in different form	20%
Final Examination	80%

References:

1. Brownson, RC, Baker, EA, Leet, TL, Gillespie, KN: *Evidence-Based Public Health*. Oxford University Press, 2003.
2. Clark, N.M., Weist, E.: *Mastering the new public health: American Journal of Public Health*. 90 (8). 1208-11, 2000.

3. Coughlin, SS, Soskolne, CL, Goodman, KW: *Case studies in public health ethics*. Washington, DC: American Public Health Association, 1997.
4. Dixit H: *Nepal's Quest for Health*, Educational Enterprises, Kathmandu, 2003.
5. Pathak RP and Giri RK: Introduction to public health, primary health care and community health development
6. Regmi, B: Fundamental development of public health, primary health care and community
7. Institute of Medicine: *The Future of the Public's Health in the 21st Century*. Washington, DC: National Academy Press, 2003.
8. Park JE and Park K: *Text book of preventive and social medicine*, recent edition.
9. Website of Nepal Public Health Association, 1991.
10. DoHS, Recent *Annual report. Department of health services*. Nepal.
11. Freudenberg, N., Eng, E., Flay, B., Parcel, G., Rogers, T., Wallerstein, N. Strengthening individual and community capacity to prevent disease and promote health: in search of relevant theories and principles: *Health Education Quarterly*. 22 (3), 290-306, 1995.
12. Friis, RH & Sellers, TA.: *Epidemiology for public health practice*. 2nd edition Gaithersburg, MD: Aspen Publication, 1999.
13. Institute of Medicine: *The Future of the Public's Health in the 21st Century*. Washington, DC: National Academy Press, 2003.
14. Lasker, R.D.: *Medicine and Public Health: the power of collaboration*, New York, NY: The New York Academy of Medicine, 1997.
15. World Health Organization. *Alma Ata: primary health care*, WHO: Geneva, 1979
16. Oxford textbook of Public Health, 5th edition
17. Sudhir Ananda, *Public Health Ethics and Equity*.
18. Mahajan BK, *A textbook of Preventive and Social Medicine*, recent edition

Course Title	Basic Epidemiology	
First Year	Second Semester	Course code: BPH 102.2-BE
Credit Hours: 3	Full Mark: 100	Pass Mark: 50

Course Descriptions:

This course has been designed to understand the concepts of epidemiology; health promotion and disease prevention and control; application of various types of epidemiological study designs for research purposes and health-related events.

Learning Objectives:

Upon the successful completion of the course, students will be able to:

- Describe and apply epidemiological concepts and strategies in planning and implementing health programs.
- Define terminologies used in epidemiology.
- Describe and generate epidemiological information for disease prevention, control and health promotion activities including epidemics and outbreaks.

- Calculate epidemiological indices and apply these to manage and evaluate health programs.
- Describe different epidemiological study designs.
- Apply epidemiological skill on major public health problem for disease prevention and control.

Micro-Syllabus

<p>Unit 1: Meaning, Types, Scope and Application of Epidemiology 10 Hours</p> <ul style="list-style-type: none"> • Definition and concept of Epidemiology • Historical development of Epidemiology • Aims, scope, purpose, branch and use of Epidemiology • Spectrum and determinants of health and disease. • Mode of transmission of diseases • Relationship between epidemiology and public health. • Natural history and progress of the disease • Natural history and level of prevention • Epidemiological classification of diseases <ul style="list-style-type: none"> o Idea and need for classification o Principles of classification o International Classification of Disease (ICD) • Distribution of Disease characteristics of; <ul style="list-style-type: none"> o Time, o Place and o Person
<ul style="list-style-type: none"> • Unit2: Terminology used in Epidemiology 4 Hours Infections, communicable disease, case, host, agent, environment, carriers, vectors, reservoir, incubation period, endemic, epidemic, sporadic, pandemic, enzootic, exotic, zoonosis, epornithic, contamination, infestation, contagious disease, nosocomial infection, opportunistic infection, iatrogenic infection, surveillance, prevention, control, elimination, eradication, certification of eradication, Iceberg phenomenon of disease, Screening, Specificity, Sensitivity, Likelihood ratio
<p>Unit 3: Measurements and calculation in epidemiology 10 Hours</p> <ul style="list-style-type: none"> • Counts, rates, ratio, proportions, incidence, prevalence (point and period), odds ratio, relative risk, cumulative incidence, incidence density, attributable risk, secondary attack, likelihood ratio, inter relationship between cumulative incidence and incidence density and use of incidence and prevalence in disease control. • Measurements of Burden of disease (DALY, HALE, QALY)
<p>Unit 4: Association and causation 8 Hours</p> <ul style="list-style-type: none"> • Concept and types of causation and associations • Supernatural causation of diseases • Wheel, multifactorial, web and pie models causation of disease • Germ theory of causation • Epidemiological triad

- Rothman principle and causation
- Synergistic causation of drug and disease, synergistic index
- Hills criteria of causation
- Establishing causal relationship
- Relation of cause and effect

Unit 5: Types of study design 16 Hours

- o Observational study design
 - Descriptive study design
 - Analytical study design and
- o Experimental study design
 - **Descriptive study design:**
- o Case series, case report and cross-sectional study design
 - Theoretical foundation
 - Some model about descriptive study
 - Advantages and disadvantages of descriptive study
 - **Analytical study design:**
- o Ecological,
- o cross-sectional analytical
- o case-control study, nested case control study design
 - Theoretical foundation
 - Selection of cases and control
 - Calculation and interpretation of odds ratio in case control study
 - Comparability of odds ratio and relative risk
 - Matching and overmatching
 - Advantages and disadvantages of case control study
- o Cohort Study
 - Theoretical foundation
 - Prospective and retrospective cohort study
 - Time related aspects of exposure and follow up period
 - Selection of comparison group in cohort study
 - Calculation and interpretation of risk ratio in cohort study
 - Advantages and disadvantages of cohort study
 - **Experimental Study design:**
 - Concept and types of experimental study (Pre, quasi and true)
 - Trials: Randomized control trial (Clinical trial, phase trial, crossover and parallel design), field trials, community trial
 - Concept and types of blinding
 - Masking in interventional study
 - Advantages and disadvantages of interventional study
 - **Errors and bias in epidemiology**
 - o Definition and types of errors
 - o Concept, definition of bias and chance, type of bias
 - o Confounding
 - o Management of confounding and error
 - randomization,
 - restriction,

- stratification,
- mathematical modelling
- matching
- o Precision
- **Investigation of an outbreak/epidemic in a district situation and planning to manage it**

Teaching Learning Methods

Multiple methods will be used to acquire the above mentioned specific objectives

- oDidactic lecture: mainly on the basic concepts, principles and theories
- oPresentations and seminars: mainly on the events and issues of debate and diverse opinions
- oSelf learning: mainly on the issues, where further explanations are desired and materials are easily available for reading.

Evaluation

Internal assessment in different forms 20%

Final examination 80%

References

1. AB Joshi, Fundamentals of epidemiology vol I and II.
2. Beaglehole R, Bonita R, Kjellstrom T. Basic Epidemiology. World Health Organization, Geneva, 2002.
3. Gordis L. Epidemiology, Second Edition, WB Saunders Company, Aharcourt HealthSciences Company, Philadelphia, 2000.
4. Tandan M. and Thapa J., A Text book of Fundamentals of Basic Epidemiology. 2012.
5. Regmi B and Myia S: Principle and practice of fundamentals and clinical epidemiology
6. Park K. A text book of preventive and social medicine; Latest edition, Jabalpur: Banarasidas Bhanot Publishers.
7. Abraham M Lilienfield, David E Lilienfield "Foundation of Epidemiology", Oxford University Press.
8. Heninkens CH, Buring JE. Epidemiology in Medicine, Lippincott Williams and wilkins, a Wolters Kluwer Company: 1987.
9. MacMahon B, Trichopoulos D. Epidemiology: Principles and Methods, Second Edition. Boston: Little, Brown, 1996.
10. Mahajan BK. A Text Book of Preventive and Social Medicine
11. Principles of Epidemiology, 2nd Edition, and An Introduction to applied Epidemiology and Biostatistics. US Department of Health and Human Service, CDC, Atlanta Georgia.
12. Rothman KJ, Greenland S. Modern Epidemiology, 2nd Edition, Lippincott-Raven publishers: 1998.
13. Rothman KJ. Epidemiology: An Introduction. Oxford University Press, 2002

Course Title	Basic Food and Nutrition	
First Year	Second Semester	Course code BPH 102.3-BFN

Credit Hours: 3	Full Mark: 100	Pass Mark: 50
------------------------	-----------------------	----------------------

Course Descriptions:

This course has been designed to impart knowledge on food and nutrition to the students. The course intends to impart knowledge and skills in understanding the relationship of food and nutrition and its importance for health. This is coupled with basics in assessing, planning and executing different interventions to overcome the problems related to food and nutrition at the community level.

Learning Objectives

Upon the successful completion of the course, students will be able to understand, define and describe the importance of food and nutrition

- Understand basic concept of food and nutrition and its relation to health
- Explore and address the socio-cultural factors of food and nutrition in relation to health promotion
- Understand the basic concept of nutritive value in the food and consequences of deficiencies

Micro-syllabus

Unit 1: Introduction to food science and nutrition	8 Hours
<ul style="list-style-type: none"> • Concept and importance of food and nutrition (1/2 hr) • Nutrition as a public health science (1/2 hr) • Classification and composition of food (1/2 hr) • Digestion, absorption, metabolism and utilization of nutrients: carbohydrates, proteins, fats, vitamins, minerals and water (2 hours) • Nutritive value of food (including nutrient content in some common Nepalese local food) (1/2 hr) • Food pyramid (1/2 hr) • Macronutrients and its functions (1hr) • Micronutrients and its functions (1hr) • Clinical nutrition and principles of therapeutic diets (1 hr) • Microbiology in nutrition(1 hr) 	
• Unit 2: Nutrition across the human life cycle	8 Hours
<ul style="list-style-type: none"> • Nutrition requirement of infant, pre-school children, school children, pregnant and breastfeeding women, adolescents, adults and old aged (2 hours) • Recommended dietary allowances, balanced diet and its importance for various age and sex groups (1hr) • Life course approach in nutrition promotion with focus on intergenerational effects of malnutrition (1hr) • Infection-malnutrition cycle (1/2 hr) 	

<ul style="list-style-type: none"> • Food based dietary guidelines (WHO and Nepal) (1/2 hr) • Breastfeeding: Physiology of milk production, advantages of breastfeeding over artificial feeding (1hr) • Weaning, supplementary and complementary feeding practices (2hr)
<ul style="list-style-type: none"> • Unit 3: Nutrition deficiency disorders, diseases and prevention 10 Hours
<ul style="list-style-type: none"> • Protein energy malnutrition (PEM) (1hr) • Iron deficiency disorder (1/2hr) • Iodine deficiency disorders(1/2hr) • Vitamin A deficiency(1hr) • Zinc deficiency (1hr) • Other nutritional deficiency diseases(1hr) • Diet and chronic diseases: Coronary Heart Disease, Diabetes Mellitus, Cancer etc. (1hr) • Major nutrition problems (At Global and at National level) (2hr) • Food and nutrients supplementation: IFA, Vitamin A, Zinc, Vitamin D, Calcium, MN (2hr)
<ul style="list-style-type: none"> • Unit 4: Food safety and hygiene 17 Hours
<ul style="list-style-type: none"> • Food Production, Quality and Human Health (2hr) • Food processing, preparation, storage and consumption (2hr) • Effects of food processing and storage on nutritive value of foods (1hr) • Role of mycotoxin on nutrition and control measures (1hr) • Food fortification, adulteration – its causes and health effects (1hr) • Anti-nutritional factors (1hr) • Relationship between food and environment. (1/2hr) • Food contamination, adulteration and fortification (1/2 hr) • Food borne diseases. (1 hr) • Management of food hygiene (2hr) <ul style="list-style-type: none"> ○ Domestic ○ Commercial ○ Institutional • Milk Hygiene (2hr) • Importance of milk and milk products. • Milk borne diseases • Management of milk • Dairy farm • Pasteurization <ul style="list-style-type: none"> • Meat Hygiene (2hr) • Importance of meat in health • Meat borne diseases. • Management of meat • Slaughterhouse and practices. • Sanitation measures. • Quality control of meat
<ul style="list-style-type: none"> • Unit 5: Socio-cultural aspect of food and nutrition 5 Hours
<ul style="list-style-type: none"> • Trans-cultural impact on food practices and behaviour(1hr)

- Culture as an influencing factor of nutritional status – useful and harmful effects (1hr)
- Socio-economic aspects of food production distribution and consumption (1hr)
- Food beliefs/values taboos and changing trends of food and dietary practices (1hr)
- Availability, preparation, cooking and consumption practices of nutrient rich indigenous foods in Nepal (1hr)

Teaching Learning Methods

Lectures, group discussions, library study assignments, home assignments and demonstration

Teaching Material –poster, model, real material etc.

Evaluation

Internal assessment in different forms 20%

Final examination 80%

References:

- 1. Clinical dietetic and nutrition - FPA Nepal.
- 2. Child Nutrition and Health –Dr. Ramesh Kanta Adhikari and Miriam Kranz
- 3. Food and Nutrition for developing countries
- 4. Human nutrition - Benjamin T. Borton, Wills R. Foster
- 5. Text book of physiology - Gauyton
- 6. Text book of Social and preventive medicine - K. Park
- 7. Nutrition in Developing Countries – Maurice King. Oxford University Press
- 8. Gartaula RP. Text book of medical sociology and anthropology and medical anthropology, RECIDIN/Nepal, Kathmandu

Course Title	Biostatistics and Computer Application	
First Year	Second Semester	Course code : BPH 102.4-BCA
Credit Hours: 3	Full Mark: 100	Pass Mark: 50

Course description

This course will develop the student's skills on the basic statistics used in public health research. Understand the key concepts on descriptive statistics, identify, use of appropriate descriptive statistics and interpret the data.

Course Objectives

- Upon the successful completion of the course, the students will be able to:
- Describe and apply statistical concepts and knowledge in planning, implementing and monitoring public health programmes
- Describe and generate statistical information participate in and provide statistical information to conduct operational research designed to provide effective health care delivery for the community

- Describe and generate information on the health status of a community.
- Able to use different search engine on web
- Handle some database, reference software
- Handle some statistical software

Micro-syllabus

Unit1: Introduction	4
Hours	
<ul style="list-style-type: none"> • Definition of common statistical terms • Definition of statistics, origin of statistics, meaning of statistics, Characteristics of statistics function, limitation • Definition of Biostatistics, its uses and applications in public health research and medical sciences and scope 	
Unit 2 : Descriptive Statistics	20
Hours	
Variables	(2 hours)
Basic concept of variables, types of variables (Categorical and continuous)), scales of measurement	
Data collection	(2 hours)
Source of data collection(primary and secondary)	
Methods of data collection and recording of statistical information on public health and its related fields	
Presentation of statistical Data	(4 hours)
<ul style="list-style-type: none"> • Classification and Tabulation of data: (2hours) Classification: objectives, types and methods of classification Frequency distribution and different types of tables (one way, two way and manifold tables) • Diagrammatic and graphic presentation: (2 hours). Bar diagram (simple, multiple, subdivided), pie chart, map diagram, pictogram histogram, frequency polygon, frequency curve, cumulative frequency curve, line chart, scatter diagram, stem- and-leaf plots, whiskers box-plot. 	
Measure of central tendency	(6 hours)
<ul style="list-style-type: none"> • Introduction, requisites of ideal measure of central tendency , types of averages (Mean, median and mode) , partition values (quartiles, deciles and percentiles), merits and demerits • Analysis of outliers • Selection of averages and Position of averages 	
Measure of Dispersion or variability	(6 hours)
<ul style="list-style-type: none"> • Introduction, requisites of ideal measure of dispersion • Types of dispersion: range, quartile deviation, mean deviation, standard deviation, variance 	

and coefficient of variation, merits and demerits.

- Measure of skewness and kurtosis

Unit 5: Basic Probability

8 Hours

- Concept of set theory, factorial, permutations and combinations (2 hrs)
- Concept of probability, its terminology and different types of definition
- Laws of probability: addition law, multiplication law and conditional probability (2 hrs)
- Bayes's theorem and its application , screening tests, sensitivity, specificity and predictive value positive and negative (4 hrs)

Unit 4: Probability Distribution

16 Hours

- Random variables: discrete and continuous; probability distribution and its types.
- Introduction of Binomial, Poisson and Normal probability distribution, its properties and application.
- Numerical exercises

•
Teaching learning method Class lectures, practical problem solving sessions, Review of Journal articles on use of statistical methods, **Evaluation** Internal assessment in different forms 20% Final examination 80%

References

1. Wayne W. Daniel. Biostatistics A foundation for analysis in the health sciences, Wiley India(P) Ltd, New Delhi, 2007
2. Blair R Clifford, Taylor Richard A, Biostatistics for health sciences, Pearson education inc, Prentice Hall, Indian edition Dorling Kindersley India Pvt Ltd, 2009
3. Panta P. P. Biostatistics, Vidyarthi Pustak Bhandar, Bhotahity, Kathmandu, 2011
4. K.S. Negi., Biostatistics. AITBS publisher, India 2008.
5. Pagano Marcello and Gauvreau Kimberlee, Principles of Biostatistics, Cengage Learning aindia Private Ltd, New Delhi, 2008
6. Rosner Bernard, Fundamentals of Biostatistics, Duxbuey Thomson Learning, seventh edition, 2010
7. Mahajan BK "Method in Biostatistics" Smt. Indu Mahajan Pusa Road, New Delhi, latest

Course Title	Practical Skill Development (Biostatistics and Computer Application)	
First Year	Second Semester	Course code: PSD 102.4-BCA
Credit Hour: 1	Full Mark: 50	Pass Mark: 30
<p>Course description PSD is a course designed to provide required practical skills for the students to do necessary lab demonstration. Students will observe the lab and field based demonstration, collection of specimen, preservation and maintains all these things in log or practical book under the direct supervision of concern teacher. Students will acquire practical knowledge and skill on computer application.</p>		

Micro-Syllabus

Introduction to Computers

- Introduction to Computers (definition, characteristics & uses),
- Introduction to Microsoft (system, application & utility);
- Introduction to Data Processing: Elements, Activities.
- Understanding about the information related to public health

Windows

- Concept of Operating System, Introduction to Windows, features
- Windows explorer; **features of** control panel, Setting wallpaper, screen saver, background.
- Creating a folder, Compressing/ Zipping files (WinZip), Virus & Antivirus

Web Resources & Security

- Introduction, Using Search engines
- Basic Security Concepts: threats to Users
- Virus & Worms, Cookies, Spam, Firewall.
- Internet & browse: introduction, scope, uses, importance and applications, different system of internet browsing, Major site of health On-line research for PH

Data management

- Introduction to DOS: Important terms in DOS (program, file, directory, names, volume label, disk drive & its name (DOS prompt).
- Comparison of CLI & GUI. DOS file system, path & path names, Internal Commands
- Brief account about different types of data base management

Word processors

- Introduction to word processing, features of word processors, working with formatted documents, Shortcut keys. Finding & replacing text,
- Formatting documents, Selecting text, Formatting characters, Changing cases, Paragraph formatting, Indents, Using format painter, Page formatting, adding header & footer, Bullets & numbering, Tabs, referencing, end note, table of content
- Word processors: Creating tables, Proofing text (Spell check, Auto correct), Inserting pictures, Mail merging, **page layout** and printing.

Spread sheets

- Introduction to spread sheet, workbooks, saving a file, opening an existing worksheet, Rows and columns, cell entries (numbers, labels, formulas), spell check, find and replace,

Adding and deleting rows and columns, Filling series, fill with drag, data sort, Formatting worksheet, Renaming sheet, Printing worksheet

- **Make data sheet in excel**
- Use functions (SUM, AVERAGE, COUNT, MAX, MIN, IF) to find the statistical result (mean, median, mode, SD etc), Data Filtering.
- Introduction to table and graphs. Make table and graph and formatting them.

Presentation

- Introduction, use of presentation software, Presentation tips, components of slide, templates and wizards, using template, choosing an auto layout, using outlines, adding subheadings, editing text, formatting text, creating presentation using blank presentation, Adding slides, changing color scheme, changing background and shading, adding header and footer, adding clip arts, Various presentation views, Working in slide sorter view, adding transition and animations to slide show, Printing slides. Creating and using master-slide.

Task	Activities	Hour	Mode of practical	Evaluation
Task 1	Operation of windows	2	Lab based practical exercise	Complete /Incomplete
Task 2	Search engine : Google, Yahoo etc Browsing web page : Related to health	2	Lab based practical exercise	Complete /Incomplete Viva- voice
Task 3	Word processing : Microsoft word Formatting text Formatting paragraph and page setup Copying and pasting text Writing equation and formula Saving document, printing document	2	Lab based practical exercise	Complete /Incomplete
Task 4	Microsoft word: Table and graphs Design and layout of table and graphs	2	Lab based practical exercise	Complete /Incomplete
Task 5	Microsoft Excel: Preparing data base, Adding and deleting rows and column, Formatting text within the cell Merging the cells, Formatting cells, Number, text etc	2	Lab based practical exercise	Complete /Incomplete
Task 6	Mathematical operation (addition, subtraction, multiplication, division, percentage, square, square root etc)	2	Lab based practical exercise	Complete /Incomplete
Task 7	Statistical function : Measure of Central tendency (mean, median, mode, Quartiles, percentiles) Measure of dispersion (Minimum, maximum, standard deviation)	2	Lab based practical exercise	Complete /Incomplete
Task 8	To make frequency distribution table (simple, cross tabs, percentage), editing the tables Identify the missing cases Selecting the required information from tables	2	Lab based practical exercise	Complete /Incomplete
Task 9-11	Use graph command to make the graphs and diagram. Editing the graphs, adding value labels, title, colors etc. Save graphs in a picture format and insert in report	6	Lab based practical exercise	Complete /Incomplete
Task 12	A complete process done by the students (from making, entering and analyzing) will be evaluated them by giving some raw data	2	Lab based practical exercise	Complete /Incomplete

Task 13	Power Point : Introduction of Power point Presentation tips, components of slide, templates and wizards, using template, choosing an auto layout, using outlines, adding subheadings, editing text, formatting text.	2	Lab based practical exercise	Complete /Incomplete
Task 14	Power Point: Creating presentation using blank presentation, Adding slides, changing color scheme, changing background and shading, adding header and footer, adding clip arts, Various presentation views.	2	Lab based practical exercise	Complete /Incomplete
Task 15	Power Point: Working in slide sorter view, adding transition and animations to slide show, Printing slides. Creating and using master-slide. Animation, design, layout of slides etc	2	Lab based practical exercise	Complete /Incomplete
Task 16:	Presentation styles of students will be observed	2	Lab based practical exercise	Complete /Incomplete

Evaluation

Full Marks : 50

Pass Marks: 30

Practical Exercise :

Internal : 20

Lab based: 10

Report :10

External :30

Lab Based:20

Viva Voice :10

Purbanchal University
Faculty of Medical and Allied Sciences
Gothgaun, Morang

Course Title: Pharmacy, Pharmacology and Toxicology

Year: First

Course code: BPH 102.5-PPT

Credit Hours: 3

Semester: Second

Full Marks: 100

Pass Marks: 50

Micro-Syllabus

Course Description

This course has been designed to impart knowledge on impart the basic concept and knowledge on Pharmacy, Pharmacology and Toxicology to the students. The course intends to impart

knowledge and skills in understanding the relationship of pharmacy, pharmacology and toxicology with its importance for community health.

Learning Objectives

Upon the successful completion of the course, the students will be able to:

- Describe pharmacy and pharmacological related terminologies and their actions, side effect of important drugs.
- Identify the various adverse effects of commonly used drugs and enumerate the name of emergency drugs, their procedure of administration and mode of actions.
- Understand the basic concepts and acquire the basic knowledge of quality assurance.
- Understand the basic concepts and acquire the basic knowledge of toxicology and its implication in public health.
- Understand diversity of toxicology and its application in understanding and controlling problems related to toxic substance in industry, agriculture and medicine.

Micro-syllabus

Unit 1: Pharmacy and Pharmacology 24 Hours

Introduction 8 Hours

- Introduction about pharmacy, pharmacology, clinical pharmacology and pharmaco-epidemiology
- Terminologies used in Pharmacology, Sources of drugs and Dosage forms (classification with examples)
- Route of drug administration (Factors governing choice of route, Classification (topical and systemic), Advantages and disadvantages of various routes.
- **Introduction to various dosage form**
- Principles of pharmacokinetics, pharmacodynamics and pharmacogenetics
- Concepts on adverse drug reaction, side effects, adherence and drug interactions, compliance
- Classification of drugs (according to DDA)

General Concepts of antimicrobial therapy: 6 Hours

- Introduction to antibiotics, antimicrobials and chemotherapy
- Classification of antibiotics, problems encountered during antimicrobial therapy (AMA), choice of AMA, rationality of combined use of antimicrobials, Disadvantage of antimicrobial combinations
- Rationale use of antimicrobial drugs, monitoring of antimicrobial therapy.
- Brief account of Penicillin, Cephalosporin, sulfonamides and trimethoprim, Macrolide, Tetracycline, and
- Fluroquinolone antibiotics (include Mechanism of action,
- Pharmacokinetic of drugs, side effects, indication and
- contraindication of each drug in very brief)

Public health aspects of pharmacy 6 Hours

- Concept and list of essential drug of government of Nepal
- Lifesaving drugs: introduction, classification, mechanism of action, fate of drugs, side effects, indications and contraindications of at least 10 drugs (including Atropine, Adenosine, Adrenaline, Dopamine, Hydrocortisone, Magnesium sulphate, Potassium chloride, Sodium bicarbonate, Mannitol and Naloxone)

- Concept of Drug Policy, Drug Act and Standard Treatment Guidelines.
- Community pharmacy and role of pharmacy in PHC
- **Quality Assurance: 4 Hours**
- Importance of **batch no**, date of manufacture and expiry date of drugs, handling and drug storage
- Concepts of GMP, GLP and GCP in public health.
- **Import, Distribution and supply storage** and importance in maintaining cold chainsystem

Unit 2: Toxicology 24 Hours

Introduction to Toxicology: 2 Hours

- Definition, scope and application of toxicology
- Terminologies used in toxicology

Basic Principles of Toxicity: 4 Hours

- Toxic and toxicity, Toxicity value, Acute and Chronic toxicity, Toxicity categories- EPA, WHO, Personal protection equipment
- Factors that influence toxicity and route of exposure.

Diversity of Toxicology 18 Hours

a. Occupational (industrial) toxicology

- Definition, different permissible values, implication in human health, determination of acceptable exposure limit

b. Environmental toxicology

- Concept of Ecotoxicology and fate of pathogen; evolution of pathogenresistance, antimicrobial resistance, fate of pollutants
- Risk assessment and management (Definition, scaling of risk, steps in determining of risk, components and risk management framework)
- Route of exposure
- Environmental toxicity management

c. Pesticide Pollution

- Introduction, pesticide use in public health, major pesticides use in Nepal, effect of different group of pesticides (including, organochlorines, organophosphates and carbamates)
- Impact of pesticides on human health
- impact of pesticides on environment

d. Forensic toxicology

- Definition, causes of poisoning, diagnosis of poisoning (physical, biochemical assessment)
- Treatment of poisoning, prevention of re-exposure and case studies.

• Clinical toxicology

- Definition, initial approach to poisoned patients, clinical effects and management of poisoning (along with specific antidotes) due to OP, OC, pyrethrins, paracetamol, barbiturates, opiates, TCA, iron, Datura.

• Cholinergic and anticholinergic drugs relating to poisoning

- Introduction, classification, mechanism of action, fate of drugs, side effects, indications and contraindications of acetylcholine, pilocarpine, phyostigmine, neostigmine, ecothiophate DFP, Atropine and Hyoscine.

Teaching Learning Methods

Teaching learning methods of this course include didactic lectures, group work, and presentations review papers discussion in class room setting.

Evaluation

Internal assessment in different forms 20%

Final examination 80%

References:

1. Katzung BG: *Basic and Clinical Pharmacology*, 7th Edition, Lange, Medical Books. McGraw-Hill, New York, 1998.
2. Tripathi K.D. *Essentials of medical pharmacology*
3. Lippincott's, Williams and Wilking, *Pharmacology*
4. WHO list of Essential drugs, WHO, 1977
5. Standard Treatment Guidelines published by DDA, 1998.
6. WHO Drug Formulary, 2002
7. Documents related to drug act and national drug policy published by DDA.
8. Department of Drug Administration: [www. dda.gov.np](http://www.dda.gov.np)
9. World Health Organization: www.who.int
10. Amdur MO, Doull J, Klaassen CD: *Casarett and Doull's Toxicology: The Basic Science of Poisons*, 5th ed. McGraw Hill: New York; 1996.
11. Olson KR, Anderson IB, Clark RF et al.: *Poisoning and Drug Overdose*, 3rd ed. Appleton & Lange: Stamford, Connecticut, 1999.
12. Wall Chart on the Management of Commonly Encountered Poisons in Nepal, 2000
13. Handbook on management of Pesticide Poisoning published by Plant Protection Division, Ministry of Agriculture