

First Year

First Semester

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Purbanchal University; Curriculum of BPH, First year (I and II semester)

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Course Title	Anatomy and Physiology		
First Year	First Semester	Course code BPH 101.1-AP	
Credit Hours: 3	Full Mark: 100	Pass Mark: 50	

Course Descriptions:

The course has been designed to impart basic concept and knowledge on structure and function of cells, tissues, organs and systems under the subject of human Anatomy and Physiology.

Learning Objectives:

Upon the successful completion of the course, students will be able to: Explain the structures and functions of different systems of human body, Describe structures and the function of the cells, tissues, organs and systems, their type, their relation to each other and to the physiological homeostasis.

Course Contents

 General Introduction: 4 Hours Define various important anatomical terminologies-	
 Define various important anatomical terminologies- Anterior, posterior, superior, inferior, extension, flexion, abduction, adduction, di proximal, sagital, (Coronal, Palmar, Dorsal and Ventral) Describe the structure and function of human cell, tissue and organ Musculo-Skeletal System 2 Hours Bone: Composition and function Name and identification of appendicular and axial skeleton Name of different types of joints and their characteristics Neurosensory System 3 Hours Mention Different components of nervous system Identify different parts of the brain and coverings Mention extent and covering of spinal cord 	
 Anterior, posterior, superior, inferior, extension, flexion, abduction, adduction, di proximal, sagital, (Coronal, Palmar, Dorsal and Ventral) Describe the structure and function of human cell, tissue and organ Musculo-Skeletal System 2 Hours Bone: Composition and function Name and identification of appendicular and axial skeleton Name of different types of joints and their characteristics Neurosensory System 3 Hours Mention Different components of nervous system Identify different parts of the brain and coverings Mention extent and covering of spinal cord 	
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Identify different parts of the brain and coverings Mention extent and covering of spinal cord	
Mention extent and covering of spinal cord	
Name main tracts of spinal cord	
Name the cranial nerves and their area of supply	
• Respiratory System 3 Hours	
Name different parts of respiratory system	
Identify Para-nasal sinuses	
Extent of larynx, trachea and bronchi	
Identify different parts of lungs and pleura	
Mention different parts of bronchial tree	

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• Blood and Cardiovascular System

Blood: Composition and function

Name and identify parts, chambers and valves of heart

Name the extent and branches of abdominal aorta, external carotid artery and internal iliac artery

Name, identify and mention the extent of axillary artery, brachial artery, radial artery, ulnar artery, femoral artery, poplitial artery, anterior and posterior tibial arteries, dorsalis pedis

Name and identify Superior Venacava (SVC), Inferior Venacava (IVC), Dural Venus sinuses

• Lymphatic System

Mention area of drainage of thoracic ducts, axillary group of lymph nodes, inguinal group of lymph nodes Pre and Paraortic lymph nodes

• Reproductive System

Name different parts, situation and extent of male and female genital organs

•	Urinary System	2 Hours
	Name different parts	
	Explain parts of kidney	
	Mention different parts of nephron	
	Mention different parts of urinary bladder	
•	G.I. System	3 Hours
	Name Different parts of Gastro Intestinal Tract	
	Mention name, position of salivary glands and pancreas	
	Mention position lobes and structure of liver	
	Name and extent hepatic biliary appendages	
	Mention basic concept of peritoneal folds	
•	Endocrine System	2 Hours
	Enumerate different endocrine glands	
	Mention their position, secretions and their functions	
Uı	nit 2: Physiology	24 Hours
•	General Physiology	4 Hours
	Name different components of human cell and their function	
	List different tissues of body and their characteristics	
	Define body fluids and electrolyte balance, classify them and mention the	eir composition
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1 Hour

1 Hour



6 Bin

3 Hours



• Cardiovascular system and Blood

List the function of heart Explain pulmonary and systemic circulation, cardiac cycle and heart sound Define blood pressure and explain the mechanism of its regulation Correlate physiological aspects of the Ischemic heart disease, hypertension and arteriosclerosis Mention composition and functions of blood Define haemopoiesis and disorders of blood components Define blood groups and mention its importance List the clothing factors and explain the step the coagulation List the function of spleen

Respiratory System

Function of the nose, Para-nasal sinuses, nasopharynx, trachea, bronchus and alveoli of the lungs Surfactants of lungs Gasses exchanges in the lungs Lungs volume and change in volume in different respiratory activities COPD, dyspnoea, PND and orthopnoea

Mechanism of coughing.

• GI System

Mechanism of mastication, deglutition, digestion, absorption, defecation and vomiting Activation of different enzyme system on smell, ingestion and hunger Function of different glands involved in digestion i.e. tonsils, salivary glands, gastric glands, pancreas, liver etc Peristalsis and regurgitation

• Musculo-Skeletal System

Muscles contraction and excitation Movement of different joints i.e. Shoulder, hip, knee, ankle, elbow, wrist etc. Co-ordination of movement Cellular respiration Cellular dehydration Cellular contraction

• Nervous System

List the function of different parts of brain and spinal cord and its coverings Mention the function of different cranial nerves Mention the functions of special senses organs Enumerate the functions of sympathetic and Para-sympathetic nerves Correlate physiological aspect of meningitis, encephalitis and epilepsy

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3 Hours

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3 Hours

3 Hours

3 Hours

4 Hours



• Urinary System

List the function of different parts of kidney and urinary tract Explain the mechanism of formation of urine and micturition Correlate the physiological aspects of polyuria and the renal stones

Endocrine/Productive System

2 Hours

2 Hours

Enumerate the main function of different endocrine glands Correlate the physiological aspects of goiter and diabetes mellitus List the main function of male and female genital organs Explain the physiological of menstruation Explain the physiological basis of contraceptives

Teaching Learning Methods

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

Teaching Material: poster, model, real materials, etc.

Evaluation

Internal assessment in different forms 20% Final examination 80%

References:

- 1. Anatomy & Physiology Ross and Willison, Recent edition.
- 2. Anatomy & Physiology for Nurses, Recent edition.
- 3. Hamilton Systemic Anatomy, Recent edition.
- 4. Chaurasia: Handbook of Human Anatomy, CBS Publication. Current Edition.
- 5. Guyton AC & Hall JE: Guyton Human Physiology and Mechanisms of Disease, Hartcourt Publishers Limited, 1996.
- 6. Williams PL (Ed): Gray's Anatomy, Recent edition, Churchill Livingston, London. Recent edition

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Course Title	Pathophysiology, First Aid and Safety		
First Year	First Semester Course code BPH 101.2-PFA		
Credit Hours: 3	Full Mark: 100	Pass Mark: 50	

Course Descriptions:

The course has been designed to impart the basic concepts and knowledge on safety education and first aid in emergency period of public health field. The course aims to develop the technical skills that skill to handle the critical situation of emergency period for providing the first aid treatment to the public as a primary prevention.

Learning Objectives

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

- Explain the basic concepts and acquire the basic knowledge of safety education and first aid.
- Identify the emergency situation in public health situation and its management.
- Explain different life threatening casualty condition and apply first aid skills to save life and promote health and recovery of the patient.
- Describe the basic clinical system related pathological, terminologies and basic pathological changes in the cells, tissues organs and the system of body.

Course contents

Unit 1: Safety education and management

- Safety education
 - o Introduction, importance
 - o Need of learning about safety education for public health professionals

• Management of Safety Measure in different areas

- o Management at home
- Management at school
- o Management on road
- o Management in play ground
- Management in work place
- Management in Public place

Unit 2: First Aid

• Introduction to first Aid

- Define first aid and describe the objectives, scope, responsibility, principle and importance of first aid
- Describe the qualification of first aid care provider and his/her ending responsibility
- Define artificial respiration; describe importance, types, steps and process of cardiopulmonary resuscitation

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6 Hours

20 Hours

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• Definition, types, sign and symptoms and first aid management of different emergency conditions

- o Shock
- o Poisoning (insecticides, rodenticides, drugs, alcohols, plants, animal bites and sting)
- Snake bite
- Foreign body in ear, nose, throat and eyes
- o Injury
- o Haemorrhage
- o Burns
- o Frostbite
- o Fracture and dislocations
- o Heatstroke
- o Rabid animal bites
- o Drowning
- o Acute mountain sickness
- o Epistasis

Unit 3: Patho-physiology

• Explain the pathophysiology of the following condition

• Concept of necrosis, inflammation, thrombosis, embolism, wound healing, shock, oedema, neoplasia, antigen and antibody reaction

• Musculo-skeletal system

o Basic concepts of fractures, arthritis, oesteomyelitis, leprosy

• Cardiovascular System

- Basic concepts of rheumatic carditis, myocardial, infraction, hypertension, arteriosclerosis, heart failure, anaemia, leukaemia, haemophilia, idiopathic thrombocytopenic purpura (ITP)
- o Explain immune deficiency disorders
- o Define hypersensitivity reactions

• Respiratory System

 Basic concept of bronchitis, bronchial asthma, tuberculosis, COPD, Pneumonia, carcinoma lung

Gastrointestinal System

• Concepts of gastritis, peptic ulcer, TB intestine, appendicitis, carcinoma stomach, hepatitis, cirrhosis, cholecystitis and cholelithiasis.

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3 Hours

22 Hours

2Hours

4 Hours

2 Hours

3 Hours

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• Neuro-sensory System and Special Senses

• Concepts of meningitis, epilepsy, encephalitis, conjunctivitis, trachoma, retinoblastoma, xerophthalmia, acute otitis media and CSOM

Renal electrolyte System

o Renal failure, nephritis, nephrotic syndrome, renal stones, UTI.

• Reproductive System and Endocrine System

- o DUB, abortions, ectopic pregnancy, benign enlarge prostate (BEP), carcinoma cervix
- Nodular goitre, diabetes mellitus
- o Breast lump

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. Medical laboratory manuals for developing countries Monica Ceesbrough (ELBS), recent edition.
- 2. R. D. Vade mecum (1998) published by Royal Drug Limited.
- 3. Baker FJ.: Introduction to medical laboratory technology, ELBS.
- 4. Cheesbrough M.: *Medical laboratory manuals for developing countries*, Vol. I & II, ELBS, 1996.
- 5. Robins, Colran and Kumar: *Pathologic basis of Disease*, 7th Edition, Churchill Livingston, 2002.
- 6. Text books of First aid. Recent edition.

2 Hours

3 Hours

3 Hours

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Course Title	Biochemistry and Immunology		
First Year	First SemesterCourse code BPH 101.3-BI		
Credit Hours: 3	Full Mark: 100	Pass Mark: 50	

The course has designed to impart the basic concepts and knowledge of Basic Sciences of Medicine particularly in Biochemistry and Immunology. The course aims to impart the basic mechanism for survival of living system along with basic laboratory skills in conducting chemical, biochemical and immunological tests.

Learning Objectives:

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

Understand the basic knowledge of biochemistry and its applications in Medical Science especially in Public Health.

Understand the role of non-living matters for development, growth and death of biological system.

Understand the role of bio-molecule and their metabolism for survival of life

Develop basic skills to conduct biochemical and Immunological laboratory tests.

Understand the mechanism of developing diseases, prognosis and diagnosis.

Analyze the problem developed during analysis, understanding and controlling disease.

Course Contents

Unit 1: Biochemistry

Definition, Scope and Application of Biochemistry in Public Health

Basic Concepts of Acid and Base (Arrhenius Concept, Bronsted Lowery Concept, Lewis Concept), Salts- Definition and types

Water- Natural Water and its types, Properties of water (Physical, Chemical and Solvent Properties), Water Balance, Dehydration, Water Intoxication

Concept of pH and pH meter

Concepts of Buffer Solution (Definition, Types of buffers present in the body fluid and their significance)

Carbohydrates- Definition, Classification, Structure (Open Chain, Closed Chain, Haworth Projection Structure), Monosaccharide, Oligosaccharide, Disaccharide, Polysaccharide, MPS, Physical and Chemical Properties of carbohydrates- Oxidation, Reduction, Dehydration, Reducing Properties, Osazone Formation- Glycoside, Amino Sugar, Deoxy Sugar

Digestion and Absorption of Carbohydrates, Lactose Intolerance, Glycolysis, Blood Glucose Regulation- by Kidney, Muscle, Liver, Hormone

Proteins- Definition, Classification (by Structure, Solubility, Nutritional Requirement), Structural Organization, Physical and Chemical Properties

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32 Hours

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Amino Acid- Definition, types (by Structure, Nutritional requirement, Metabolic Fate), Essential and Non-Essential Amino Acids and their structures

Lipid - Definition, Classification, Physical and Chemical Properties- (MP, Rancidity, Sap. Value, Acid Value, Iodine No.), Cholesterol and its significance in the body. Fatty Acids- Definition, Classification, Properties-MP, Halogenation, Dehydrogenation, Saponification, Importance of PUFA

Enzymes- Definition, Properties, Terminology- Holo-enzyme, Apo-enzyme, Coenzymes, Co-factor, Prosthetic group, Active Site, Iso-enzyme, IUB Classification, Mechanism of their action, Factors affecting Enzymatic Reaction Rate, Application of Enzyme

Nucleic acid (DNA, RNA and their types, Watson and Crick Model of DNA)

Mineral-Introduction, Source, RDA, Biochemical Functions and Clinical Significance of Macro and Micro Minerals i.e. Iron, Calcium, Phosphorus, Sodium, Potassium, Magnesium, Chlorine, Sulfur, Iodine, Fluorine, Manganese, Cobalt, Copper, Zinc, Selenium

Vitamin-Introduction, Source, RDA, Biochemical Functions and Clinical Significance of Water Soluble and Fat Soluble Vitamin

Unit 2: Immunology

16 Hours

Introduction to Immunology- Innate and Adoptive Immunity, Active and Passive immunity, Antigen- Complete and Incomplete Antigen, Antibodies and their types, Immunopathology.

Defense Mechanism

First line defense mechanism

Second line- Cells and Organ Involved in Immune System- Lymphoid cells, myeloid cells, Primary Lymphoid organs and Secondary lymphoid organs.

Third line Defense Mechanism of body-Cellular Immunity- T-cell dependent and T-cell independent, Antibody dependent and Antibody independent. Humoral Immunity-Antigen Presentation and Processing.

Hypersensitivity Reactions and their types

Concept of vaccine and vaccination, type of vaccine, mechanism of vaccine

Concept and importance of cold chain

Relation of immunity, immunology and disease

Antigen and Antibody Reactions-Serological reactions, ELISA, RIA, Immuno fluorescence

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%

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Reference

- 1. Lenninger, AL: Principles of Biochemistry, CBS Publications.
- 2. Murray RK, Granner DK, Mayes PA, Rodwell VW: Harpers Biochemistry, 21stEdition,. Appleton and Lang: California, 1995
- 3. Chatarjee MN., Shinde R. :Textbook of Medical Biochemistry, 5th Edition, Jaypee Brothers Medical Publisher (P) LTD, New Delhi,2002
- 4. Goldsby RA, Kinct TJ, Osborne BA, Kuby J :Immunology, 5th Edition, W.H. Freeman and Company, San Francisco, New York 2003
- 5. Satyanarayana U. Chakrapani U. : Biochemistry, 3rd edition, Book and Allied (P) Ltd, Calcutta, India, 2006
- Chakraborty P. : A text book of Microbiology, 2nd Edition, New central Book agency (P) LTD, Calcutta, India,2003
- 7. Stryer, L.: Biochemistry, 4th Edition, W.H. Freeman and Company, San Francisco, 2000
- 8. Ivan Riot: Essential Immunology, ELBS- 9th Edition, 1999
- 9. Cheesebrough M. "District Laboratory Practice in Tropical Countries" Volume I and II, Cambridge low price Edition, 1998.
- 10. Mukherjee Kannai L. "Medical Laboratory Technology" Volume I, II and III. McGraw-Hill Publishing Company ltd.
- 11. Fuerst R. "Microbiology in health and disease" W. B. Saunder 1995.
- 12. Mackle and Cartney MC. "Practical Medical Microbiology" Churchill Livingston 1994.
- 13. Lyd Yard PM "Immunology"
- 14. Bailey & Scott's: Diagnostic Microbiology

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Course Title	Microbiology, Parasitology, Bacteriology and Virology		
First Year	First Semester	Course code BPH 101.4-MPBV	
Credit Hours: 3	Full Mark: 100	Pass Mark: 50	

Course description

The course aims to impart the basic concepts in general microbiology, parasitology, bacteriology, virology and disease development. The course also aims to develop the basic laboratory skills in identifying and diagnosing the fungal, bacterial, viral and parasites related causal agents, organisms and diseases.

Course Objectives:

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

- To provide the basic concepts in microbiology, (bacteriology, virology, parasitology, mycology), and immunology and disease processes
- Describe the concepts of important microbial diseases in communities (fungal, parasitic, bacterial, viral)
- Describe the lifecycle of common intestinal and blood parasites
- Provide the treatment prevention and control of parasitic diseases
- Describe concepts of host-parasite relationship, normal flora, opportunistic, nosocomial and pathogenic microorganisms
- Describe the methods of sterilization
- Understand the mechanism and development of immunity
- Describe the selection, collection and transportation, storage and processing of specimens

Course Contents

Unit 1: Introduction of microbiology

- Introduction to microbial world
- Classification of microbial diseases
- Introduction to community acquired microbial infections

Unit 2: Bacteriology

- Scope and public health importance of bacteriology
- Morphology and Classification of bacteria
- Normal bacterial flora on or in the body
- Concept of opportunistic and pathogenic organisms
- Bacterial physiology and its growth factors
- Mechanism of infection
- Spread of diseases Endemic, epidemic and pandemic and laboratory infection

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10 Hours

5 Hours

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• Morphology, mechanism of pathogenesis, laboratory diagnosis and prevention and control of some of the community concerned bacteria (Respiratory, genital and gastrointestinal diseases)

• Gram staining and AFB staining in identifying bacteria.

Unit 3: Parasitology

- Scope and public health importance of parasites
- Classification of human parasite
- Describe the morphology, epidemiology, life-cycle, pathogenesis and pathogenicity, diagnosis and prevention and control measures of following parasites;
 - Protozoa Entamoeba histolytica, Giardia intestinalis, Plasmodium, Leishmania donovani
 - Helminths Ascaris lumbricoides, Anchylostoma duodenali and N. americans, Enterobius vermicularis, Trichiuris trichiura, Taenia solium, Taenia saginata, Echinococcus granulosus, Hymenolepsis nana and Wouchereria bancrofti

Unit 5: Virology

- Introduction and Classification of virus
- Replication of virus, Cultivation of viruses
- Introduction to viral diseases of public health concern (Influenza, Measles, RSV, Arboviruses, Retrovirus, Hepadna viruses, Corona viruses, Picorna virus, Rhabdovirus, Adenovirus)
- Collection and preservation of viral specimen for laboratory study
- Prevention and control of viral diseases

Unit 6: Mycology

• Introduction, classification and methods of identification of fungal disease of public concern - Dermatomycoses and Candidiasis.

Unit 7: Laboratory concept

- Introduction of laboratory protocols, study of universal precaution and post exposure prophylaxis
- Principle of microscopy and study of different parts of light microscope
- Sterilization Physical, chemical and radiation
- Method of disinfection and their importance

Teaching Learning Methods

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

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2 Hours

8 Hours

15 Hours

8 Hours

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Evaluation

Internal assessment in different forms 20% Final examination 80%

References

- 1. Cheesebrough M. "District Laboratory Practice in Tropical Countries" Volume I and II, Cambridge low Price Edition, 1998.
- 2. Fuerst R "Microbiology in health and disease" W.B. Saunder 1995.
- 3. Mackle and Cartney MC. "Practical Medical Microbiology" Churchill Livingston 1994.
- 4. Chatterjee, K. D. "Parasitology, Protozoology and Helminthology" Chatterjee Medical Publishers, 12th edition, 2001.
- 5. Mukherjee, Kaanai L. "Medical Laboratory Technology" Volume I, II and III, Mcgraw- Hill Publishing Company Limited.
- 6. Parajuli K. Laboratory Practical Parasitology" Vidharthy Pustak Bhandar
- 7. Parajuli K. Laboratory Practical Microbiology" Vidharthy Pustak Bhandar

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Course Title	Medical Entomology and Rodentology		
First Year	First Semester	Course code BPH 101.5-MER	
Credit Hours: 3	Full Mark: 100	Pass Mark: 50	

The course has designed to impart the basic concepts and knowledge on entomology, rodentology and insecticides.

Learning Objectives:

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

Understand the basic concepts and acquire the basic knowledge of entomology.

Describe the role of arthropods in public health.

Describe the role of rodents in public health

Describe the characteristics of different arthropods and rodents of medical importance and disease transmitted by them.

Describe different control measures of arthropods and rodents.

Describe the types, usability, problem of resistance and health hazards of insecticides and rodenticides.

Course Contents

Unit 1: Medical Entomology

• Introduction

- o Introduction to medical entomology
- Introduction to medically important arthropods
- General and outline classification of arthropods (with special reference to medical important groups)

• Habit, habitant, external morphology and control measures; 16 Hours

- Arachnids: Scorpions, spider, ticks, mites
- o Non-dipterous insect: Lice, fleas, bugs, and cockroach
- Dipterous insects:
 - Myasis Producing flies: housefly
 - Phlebotomine: Sand flies
 - Simulium: Black flies
- o Mosquito (Life cycle and differences) Culicine, Anopheline and Aedes

• Disease and health hazards:

• Diseases and health hazards associated with arthropods

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- o Different methods of controlling arthropods
- o Insecticides and their usability
- Insecticides Problem of resistance, Hazards

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32 Hours 10 Hours

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6 Hours

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Unit 2: Rodentology:

• Introduction

- Introduction to rodent and rodentology
- o Introduction to medically important rodents
- Classification of rodent (with special reference to medical important groups)

• Disease and health hazards:

- o Disease and health hazards associated with rodents
- Different methods antirodent measures
- Rodenticides and their usability

Unit 3: Integrated control approach

- o Principle of control measure of arthropod and rodents
- o Integrated control measures of arthropod and rodents
- Nepal vector born disease program (Objective and strategy)
- o Public health importance, hazards and management of pesticides
- o Coordination with line ministries; MoHP, MoA, Ministry of Environment

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. Handbook on management of Pesticide Poisoning published by Plant Protection Division, Ministry of Agriculture
- 2. Implementation of integrated vector management, report of regional meeting, SEARO 2010
- 3. PG Fenemore, Alka Prakash" Applied Entomology" New Age International P Ltd.
- 4. B. S. Mishara and Dr. R. P. Singh "A Text book of Medical Zoology". Durga Books, 2000.
- 5. Gordon, R.M.; Lavoipoerre, M.M.J.; Entomology for Students of Medicine. Fifth edition, Blackwell Scientific Publications 1978
- 6. Service SM. Lecturer notes on medical entomology. London, Blackwell Scientific, 1986
- 7. Jan A. Rozendaal. Vector control. WHO, Geneva, 1999

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8 Hours 4 Hours

4 Hours

8 Hours

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Course Title	Professional English	
First Year	First Semester	Course code BPH 101.6-PE
Credit Hours: 3	Full Mark: 100	Pass Mark: 50

Course description

The course offers an opportunity to develop a basic understanding of context and scope of English in public health, including sentence structure, communication, and technical writing skill, speaking skill and time management. The student will learn different national and international declarations, research report, discoveries, and literature as significant forces influencing public health.

Course Objectives:

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

- Basic concepts about the technical English and student able to develop utilization of professional communication skills in public health discipline.
- Identify sentence (clause) and its types and transformation of sentences
- Communicate in different technical topics
- Develop reading skills, note making and summarizing from different passages
- Prepare short memoranda, write business letters, job application, seminar papers, and proposal writing

Course Contents

Unit 1: Review of Written English

• Sentence structure (identification of sentence or its types and transformation of sentences) and clauses

Unit 2: Oral Communication

- **Public Speaking:** Audience Analysis, Choosing the Subject, Preparation of Speech, Presentation, Use of various Aids, Launching Pad, Evaluation, How to overcome Stage fear and Class room practice
- **Public communication**: Preposition & noun phrases (noun, adjective and adverbs) and their use, verbal phrases, types of English. Elements of communication, 7cs of communication, types of communication, speaking and listening, non verbal communication, writing skills, body language, improvement of communication skills and class room practice.
- **Interview facing:** Preparation for the interview, attire, postures and gestures, right way of answering questions.

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15 Hours

8 Hours

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• Audience Analysis: Choosing the Subject, Preparation of Speech, Presentation, Use of various Aids, Launching Pad, Evaluation, How to overcome Stage fear.

Unit 3: Technical Writing Skill

• Literature review, Article and summery, preparation of short memoranda (Importanceformats), health messages, business letters (Importance-purposes), paragraph writing (descriptive/narrative, argumentative, compare and contrast etc.), note taking and preparation of meeting minutes, job application, motivation letter, bio-data/curriculum vitae, description writing (Process, mechanism, place etc.), seminar papers, rapporteuring, proposal writing (Importance- type, formats), preparation of reports (Importance-types, formats), article's summary

Unit 4: Reading skill

• Comprehension questions and exercises (from prescribed passages- discovery, diseases, community and environment, healthy life styles, conferences, foundations of public health etc.), outlining or note taking, precise writing.

Unit 5: Time management

• Importance of time, identifying time wasters, four chambers of time management, steps for proper management of time

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. Eisenberg A.: Effective Technical Communication, McGraw-Hill Inc, 1982
- 2. Houp and Pearsall TE: Reporting Technical Information, Allyn and Bacon, Boston.
- 3. Narayanaswami VR: Strengthen Your Writing, Orient Longman, Madras.
- 4. Tickoo C. and Sasikumar J.: Writing with a Purpose, Oxford University Press, Bombay.
- 5. A Handbook of Pronunciation of English Words (with 90 minutes audio cassette).
- 6. Communication Skill in English
- 7. Oxford Advanced Learners' Dictionary of Current English.

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10 Hours

13 Hours

2 Hours

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Course Title	Practical Skill Development		
	(Anatomy and Physiology)		
First Year	First Semester	Course code: BPH 101.1-AP	
Credit Hour: 1	Full Mark: 50	Pass Mark: 30	

PSD is a course designed to equip the students with practical skills required to do necessary lab demonstration. Students will observe the lab and field based demonstration, collection of specimen, preservation and maintain all these things in log or practical book under the direct supervision of concerned teacher. Students will acquire practical knowledge and skill on human anatomy and physiology.

Details of PSD			
SubjectPracticalContent		Log or	
	Hours		practical book
Anatomy and Physiology	32	 Identify, draw and labelled of different types of bones draw and labelled of heart, kidney, liver, lungs, eye, ear, uterus and general body system Draw and labelled all the body system Demonstration of different parts of human body (Dummy) 	Maintain
Total practical :	32 Hours		

Maximum 20 students could be sitting for effective practical in one event. But that depends upon the practical room and setting.

Maintain process of log or practical book

- Write practical with specific detail, description, process and drawing manually
- All practical should be signed by respective teacher and head of the department/Coordinator
- All student must bring practical log book/ report in final examination
- Final examination will be based on practical

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Course Title	Practical Skill Development		
	(Pathophysiology, First Aid and Safety)		
First Year	First Semester	Course code: BPH 101.2-PFAS	
Credit Hour: 1	Full Mark: 50	Pass Mark: 30	

PSD is a course designed to equip the students with practical skills required 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 pathophysiology, first aid and safety.

Details of PSD			
Subject Practical Content		Log or	
	Hours		practical book
Patho-physiology, First Aid and Safety	Hours 32	 Identification different type of surgical instruments and materials Measurement of temperature Measurement of pulse Measurement of blood pressure Mouth to mouth respiration Simulate CPR Methods of use of different types of bandage in different types cut and fracture Use of tourniquet Use of splint Management of epistasis Preparation of ORS Emergency stature and process of stature 	Maintain
Total practical :	32 Hours	movement	

Maximum 20 students could be sitting for effective practical in one event. But that is depends upon the practical room and setting.

Maintain process of log or practical book

- Write practical with specific detail, description, process and drawing manually
- All practical should be signed by respective teacher and head of the department/Coordinator
- All student must bring practical log book/ report in final examination
- Final examination will be based on practical

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Course Title	Practical Skill Development	
	(Biochemistry and Immunology)	
First Year	First Semester	Course code: BPH 101.3-BI
Credit Hour: 1	Full Mark: 50	Pass Mark: 30
	·	

PSD is a course designed to equip the students with practical skills required 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 biochemistry and immunology.

Details of PSD			
Subject	Practical Content		Log or
	Hours		practical book
Biochemistry and Immunology	32	 Using pH paper and pH meter Preparation of different types of solutions i.e. normal solution, molar solution, percentage solution Estimation of serum glucose, protein and albumin using kit Measurement of pH (solutions, buffers etc.) Estimation of glucose, protein albumin etc in body fluids. Color tests of carbohydrates, proteins and fats 	Maintain
Total practical :	32 Hours		

Maximum 20 students could be sitting for effective practical in one event. But that is depends upon the practical room and setting.

Maintain process of log or practical book

- Write practical with specific detail, description, process and drawing manually
- All practical should be signed by respective teacher and head of the department/Coordinator
- All student must bring practical log book/ report in final examination
- Final examination will be based on practical

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Course Title	Practical Skill Development		
	(Microbiology, Parasitology, Bacteriology and Virology)		
First Year	First Semester	Course code: BPH 101.4-MPBV	
Credit Hour: 1	Full Mark: 50	Pass Mark: 30	

PSD is a course designed to equip the students with practical skills required 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 microbiology, virology, parasitology and bacteriology.

Details of PSD			
Subject	Practical	Content	Log or
	Hours		practical book
Microbiology, Parasitology, Bacteriology and Virology	32	 Selection, collection, transportation, storage and processing of samples for laboratory diagnosis of microbial diseases Basic culture media and culture techniques Performance of Gram stain, AFB stain and identification of bacteria Collection, preparation of slides, identification of common blood, measurement of haemoglobin Use of autoclave, hot air oven and chemicals (disinfection) Preparation of slides (smears) and identification of ova, parasites, cyst trophozoites from stool specimen. Performance of Gram staining and AFB staining and identify the bacteria. 	Maintain
Total practical :	32 Hours		

Maximum 20 students could be sitting for effective practical in one event. But that is depends upon the practical room and setting.

Maintain process of log or practical book

- Write practical with specific detail, description, process and drawing manually
- All practical should be signed by respective teacher and head of the department/Coordinator
- All student must bring practical log book/ report in final examination

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• Final examination will be based on practical

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Course Title	Practical Skill Development		
	(Medical Entomology and Rodentology)		
First Year	First Semester	Course code BPH 101.5-MER	
Credit Hour: 1	Full Mark: 50	Pass Mark: 30	

Course description

PSD is a course designed to equip the students with practical skills required 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 entomology and rodentology.

Details of PSD			
Subject	Practical Content		Log or
	Hours		practical book
Medical Entomology and Rodentology	32	 Preparation for field (Instrument, collection media) One day concurrent field for observation and collection of different types of insects. Preservation of different types of insects and rodents through different process Preparation of slide of medically important insects (any of two-Mosquito, sand fly, lice, bedbug etc) Preparation and submission of report to department 	Maintain
Total practical :	32 Hours		

Maximum 20 students could be sitting for effective practical in one event. But that is depends upon the practical room and setting.

Maintain process of log or practical book

- Write practical with specific detail, description, process and drawing manually
- All practical should be signed by respective teacher and head of the department/Coordinator
- All student must bring practical log book/ report in final examination
- Final examination will be based on practical

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First Year

Second Semester

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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

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 Concept, definition, philosophy and scope of public health 	24 Hours 2 Hours
Historical development of public health	10 Hours
Public health in the global context	
• 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.	
• Ancient and pre-unified period	

- After Unification and during Rana period
- o From 2007 and during Panchayat period
- o After 2047 BS

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• Concept of health and Diseases

- Concept of health
- Concept of diseases
- o Concept of being healthy
- Spectrum of Health and Disease
- o Natural history of disease

• Preventive health and levels of prevention

- Concept of Prevention
- Concept of Preventive Health
- o Level and scope of preventive health
 - Primordial Prevention
 - Primary Prevention
 - Secondary Prevention
 - Tertiary Prevention

• Concept of community health, community medicine and clinical medicine 2 Hours

- o Concept of Community Health
- o Concept of Community medicine
- Concept of Clinical Medicine
- Relation and difference between them

Unit 2: Situation and Efforts in Public Health

- Interdisciplinary Approach in Public Health
 - Epidemiological approach
 - Biostatistics Approach
 - o Public Health Laboratory Science Approach
 - o Sociological and Anthropological Approach
 - Cultural and Behavioural Approach
 - Environmental Health Approach
 - Veterinary Science Approach

• National and International Public Health Problems

- o Current International Problems, Burden and Effects
- o Mental health, Psychiatry problems and Addictive Problems
- Adolescents and reproductive health Problems
- o Major communicable and Non-communicable Diseases
- o Emerging Health Problems such as HIV and AIDS, and others

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- o Re-emerging Health Problems such as Malaria and others
- o New mores and New Freedoms
- Economically and Culturally Deprived Population

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4 Hours

6 Hours

24 Hours

6 Hours

6 Hours

• Public health problems and Issues in Nepal

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- Communicable Diseases (types, burden causes and effects)
- o Non-communicable Diseases (types, burden causes and effects)
- Nutritional Deficiency Disorders (types, burden causes and effects)

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o Trauma and Injuries (types, burden causes and effects)

• Significant Forces Influencing Public Health

- Public Health in National Planning of Nepal
- Public health programs in Nepal
- o Efforts on Health Awareness and Health Habits
- o 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 form20%Final Examination80%

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.

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- 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

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4 Hours

8 Hours

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- 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 collaborationn*, 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

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

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, the 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.

Course Content

Unit 1: Meaning, Types, Scope and Application of Epidemiology 10 Hours

- 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
- Epidemiological classification of diseases
 - Idea and need for classification
 - Principles of classification
 - o International Classification of Disease (ICD)
- Distribution of Disease characteristics of;
 - o Time,
 - Place and
 - o Person

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Unit 2: Terminology used in Epidemiology

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• 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 and screening

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Unit 3: Measurements and calculation in epidemiology

- 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)

Unit 4: Association and causation

- 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: -

- 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

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4 Hours

10 Hours

8 Hours

16 Hours

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- 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
- 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
 - Concept, definition of bias and chance, type of bias
 - \circ Confounding
 - Management of confounding and error
 - randomization, restriction, stratification, mathematical modelling and 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

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

Purbanchal University; Curriculum of BPH, First year (I and II semester)



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 Health Sciences 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; Latestedition, Jabalpur: Banarasidas Bhanot Publishers.
- 7. Abraham M Lilianfield, 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, 2ndEdition, Lippincott- Raven publishers: 1998.
- 13. Rothman KJ. Epidemiology: An Introduction. Oxford University Press, 2002

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Course Title	Basic Food and Nutrition	
First Year	Second Semester Course code: BPH 102.3-BFN	
Credit Hours: 3	Full Marks: 100	Pass Marks: 50

Course Description

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

Course contents

Unit 1: Introduction to food science and nutrition

- Concept and importance of food and nutrition
- Nutrition as a public health science
- Classification and composition of food
- Digestion, absorption, metabolism and utilisation of nutrients: carbohydrates, proteins, fats, vitamins, minerals and water
- Nutritive value of food (including nutrient content in some common Nepalese local food)
- Food pyramid
- Macronutrients and its functions
- Micronutrients and its functions
- Clinical nutrition
- Microbiology in nutrition

Unit 2: Nutrition across the human life cycle

- Nutrition requirement of infant, pre-school children, school children, pregnant and breastfeeding women, adolescents, adults and old aged
- Recommended dietary allowances, balanced diet and its importance for various age and sex groups
- Life course approach in nutrition promotion with focus on intergenerational effects of malnutrition

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8 Hours

8 Hours

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- Infection-malnutrition cycle
- Food based dietary guidelines (WHO and Nepal)
- Breastfeeding: Physiology of milk production, advantages of breastfeeding over artificial feeding
- Weaning, supplementary and complementary feeding practices

Unit 3: Nutrition deficiency disorders, diseases and prevention

10 Hours

- Protein energy malnutrition (PEM)
- Iron deficiency disorder
- Iodine deficiency disorders
- Vitamin A deficiency
- Zinc deficiency
- Other nutritional deficiency diseases
- Diet and chronic diseases: Coronary Heart Disease, Diabetes Mellitus, Cancer etc.
- Major nutrition problems (At Global and at National level)
- Food and nutrients supplementation: IFA, Vitamin A, Zinc, Vitamin D, Calcium, MN

Unit 4: Food safety and hygiene

- Food Production, Quality and Human Health
- Food processing, preparation, storage and consumption
- Effects of food processing and storage on nutritive value of foods
- Role of mycotoxin on nutrition and control measures
- Food fortification, adulteration its causes and health effects
- Anti-nutritional factors
- Relationship between food and environment.
- Food contamination, adulteration and fortification
- Food borne diseases.
- Management of food hygiene
 - o Domestic
 - o Commercial
 - o Institutional
- Milk Hygiene
 - Importance of milk and milk products.
 - o Milk borne diseases
 - o Management of milk
 - o Dairy farm
 - o Pasteurization
- Meat Hygiene
 - o Importance of meat in health
 - o Meat borne diseases.
 - o Management of meat
 - o Slaughterhouse and practices.

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17 Hours



- Sanitation measures.
- Quality control of meat

Unit 5: Socio-cultural aspect of food and nutrition

5 Hours

- Trans-cultural impact on food practices and behaviour
- Culture as an influencing factor of nutritional status useful and harmful effects
- Socio-economic aspects of food production distribution and consumption
- Food beliefs/values taboos and changing trends of food and dietary practices
- Availability, preparation, cooking and consumption practices of nutrient rich indigenous foods in Nepal

Teaching learning methods

- Classroom lectures
- Group work and presentation
- Concurrent field visits to observe nutrition rehabilitation centers

Final examination

Internal assessment 20% Final assessment 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 Bejamin 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.

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

This course will develop the student's skills on the basic statistics used in public health research. Understand the key concepts on descriptive statistics analytical statistics process, 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

Course Contents

Unit 1: Introduction

- Definition of common statistical terms
- Definition of statistics and bio-statistics and its types, scope, function, limitations and characteristics.
- Uses and application of bio-statistics in public health research and medical sciences.

Unit 2: Descriptive Statistics

- Basic concept of variables, types of variables (discrete and continuous variables), scales of measurement
- Data Collection
 - Collection and recording of statistical information on public health and its related fields from primary and secondary sources
- Presentation of statistical data
 - Classification and Tabulation of data: frequency distribution and different types of tables (one way, two way and manifold tables).
 - Diagrammatic and graphic presentation:
 - 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.

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20 Hours

4 Hours



- Measures of Central Tendency
 - Mean, Median & Mode and identify the ideal averages, requisites and its merits and demerits
 - Analysis of outliers
 - o Different partition values (quartiles, deciles& percentiles) and its uses.
- Measures of dispersion (variability)
 - Range, quartile deviation, mean deviation, standard deviation, variance and coefficient of variation and identify the ideal dispersion, requisites and its merits and demerits
- Measures of skewness and kurtosis.

Unit 3: Basic Probability

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

Unit 4: Probability Distribution

• Random variables: discrete and continuous; probability distribution and its types. Introduction of Binomial, Poisson and Normal probability distribution and its properties and application, parameters and mean and variance; 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. Blair R Clifford, Taylor Richard A, Biostatistics for health sciences, Pearson education inc, Prentice Hall, Indian edition Dorling Kindersley India Pvt Ltd, 2009
- 2. K.S. Negi., Biostatistics. AITBS publisher, India 2008.
- 3. Pagano Marcello and Gauvreau Kimberlee, Principles of Biostatistics, Cengage Learning aindia Private Ltd, New Delhi, 2008
- 4. Rosner Bernard, Fundamentals of Biostatistics, Duxbuey Thomson Learning, seventh edition, 2010
- 5. Wayne W. Daniel. Biostatistics A foundation for analysis in the health sciencess, Wiley India(P) Ltd, New Delhi, 2007
- 6. Panta PP. Biostatistics, Vidyarthi Pustak Bhandar, Bhotahity, Kathmandu, 2011

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7. Mahajan BK "Method in Biostatistics" Smt. Indu Mahajan Pusa Road, New Delhi, latest

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8 Hours

16 Hours



Course Title	Pharmacy, Pharmacology and Toxicology	
First Year	Second Semester	Course code: BPH 102.5-PPT
Credit Hours: 3	Full Marks: 100	Pass Marks: 50

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.

Course contents

Unit 1: Pharmacy and Pharmacology

• Introduction:

- Introduction about pharmacy, pharmacology, clinical pharmacology and pharmacoepidemiology
- 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.)
- 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

24 Hours

8 Hours

o Introduction to antibiotics, antimicrobials and chemotherapy,

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- o 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.
- o 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

- Concept and list of essential drug of government of Nepal
- o 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, Naloxone.)
- o Concept of Drug Policy, Drug Act and Standard Treatment Guidelines.
- Community pharmacy and role of pharmacy in PHC

Quality Assurance:

- o Importance of date of manufacture and expiry date of drugs, Handling and drug storage
- Concepts of GMP, GLP and GCP in public health.
- Vaccination and importance in maintaining cold chain system

Unit 2: Toxicology

- Introduction to Toxicology: 2 Hours
 - Definition, scope and application of toxicology
 - Terminologies used in toxicology

Basic Principles of Toxicity:

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

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Diversity of Toxicology

- Occupational (industrial) toxicology
 - Definition, different permissible values, implication in human health, determination of acceptable exposure limit

• Environmental toxicology

Concept of Ecotoxicology and fate of pathogen; evolution of pathogen resistance, antimicrobial resistance, fate of pollutants

4 Hours

6 Hours

4 Hours

18 Hours

24 Hours



- Risk assessment and management (Definition, scaling of risk, steps in determining of risk, components and risk management framework)
- Route of exposure
- Environmental toxicity management

• 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

• 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. Lippincotts, Williamy and Wilking, Pharmacology
- 4. WHO list of Essential drugs, WHO, 1977
- 5. Standard Treatment Guidelines published by DDA, 1998.

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- 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
- 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

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Course Title	Preparation of Term Paper		
	(Introduction to Public Health)		
First Year	Second Semester	Course code: TPP 102.1-IPH	
Credit Hour: 1	Full Mark: 50	Pass Mark: 30	

TPP 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 IPH

Details of PSD			
Subject	Practical	Content	Log or
	Hour		practical book
Introduction to		- Individually term paper presentation, discussion	
public health		of different topic in public health related area	
	32	with international scenario	Maintain
		- Preparation and submission of report to	
		department	
Total practica	al: 32 Hours		•

Maintain process of log or practical book

- Write practical with specific detail, description, process and drawing manually
- All practical should be signed by respective teacher and head of the department/Coordinator
- All student must bring practical log book/ report in final examination
- Final examination will be based on practical

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Course Title	Practical Skill Development		
	(Basic Epidemiology)		
First Year	Second Semester	Course code: TPP 102.2-BE	
Credit Hour: 1	Full Mark: 50	Pass Mark: 30	

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 epidemiology.

Details of PSD			
Subject	SubjectPracticalContent		
	Hour		practical book
Basic Epidemiology	32	 At least one public health related program pick up from DoHS annual report and critically review the past three years epidemiological data of any component individually Prepare methodology, analyze and presentation of data from tabular, bar, pie, histogram, pictogram and presentation in college Preparation and submission of report to department 	Maintain
Total practical : 32 Hours			

Maintain process of log or practical book

- Write practical specific detail description, process and drawing with manually
- All practical should signature by respective teacher and head of the department/Coordinator
- All student must bring practical log book/ report in final examination
- Final examination must be based on practical

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Course Title	Practical Skill Development		
	(Basic Food and Nutrition		
First Year	Second Semester	Course code: PSD 102.3-BFN	
Credit Hour: 1	Full Mark: 50	Pass Mark: 30	
Food and Nutrition			

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 food and nutrition.

Details of PSD				
Subject	Subject Practical Content		Log or	
	Hour		practical book	
Basic food and Nutrition	32	 Anthropometric measurement (BMI, Weight for age, Height for Age, Weight for Height of your friends/family member/neighbor) and its interpretation. Development of partograph and growth monitoring chart Demonstration on preparation of sarbottam pitho. Preservation procedure of different types of food in home setting Collection of food of containing carbohydrate, protein, fat, vitamin and report about its calorie Preparation of daily recommended food supply for you and compare with actual feeding habit and recommended yourself and prepare report One day concurrent field visits to observe nutrition rehabilitation centers Preparation and submission of report to department 	Maintain	
Total practical : 32 Hours				

Maintain process of log or practical book

• Write practical with specific detail, description, process and drawing manually

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- All practical should be signed by respective teacher and head of the department/Coordinator
- All student must bring practical log book/ report in final examination
- Final examination will be based on practical

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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	

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.

Details of PSD			
Subject	Practical	Content	Log or
	Hour		practical book
Computer		Introduction to Computers	
application		 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	
	32	 Windows explorer; Control panel, Setting 	Maintain
		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	

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	 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, 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, Printing. 		
	 Spread sheets Introduction, 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, Spread sheets: Functions (SUM, AVERAGE, COUNT, MAX, MIN, IF), Data Filtering. Introduction to charts, types of charts, Renaming sheet, Printing worksheet. 		
	 Presentation Introduction, Use of presentation software, Presentation tips, components of slide, templates and wizards, using template, choosing an auto layout, using outlines, adding 		

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	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.	
Total practical : 32 Hours		

Maximum 20 students could be sitting for effective practical in one event. But that is depends upon the practical room and setting.

Maintain process of log or practical book

- Write practical with specific detail, description, process and drawing manually
- All practical should be signed by respective teacher and head of the department/Coordinator
- All student must bring practical log book/ report in final examination
- Final examination will be based on practical

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Course Title	Preparation of Term Paper		
	(Pharmacy, Pharmacology	and Toxicology)	
First Year	Second Semester	Course code: TPP 102.5-TPP	
Credit Hour: 1	Full Mark: 50	Pass Mark: 30	

TPP 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 pharmacy, pharmacology and toxicology.

Details of TPP			
Subject	PracticalContentLog or		Log or
	Hour		practical book
Pharmacy, pharmacology and toxicology	32	 Demonstration to practical aspects on handling of prescription Demonstration on basic equipment and instrument in pharmacology One day concurrent visit to forensic toxicology laboratories and field visit report (group report) One day concurrent observation visit to Pharmacology industries (Environmental status, drug storage, pollution management and drug formation process) and field visit report (group report) Report on clinically important toxic substances Preparation and submission of report to department 	Maintain
Total practical : 32 Hours			

Maximum 20 students could be sitting for effective practical in one event. But that is depends upon the practical room and setting.

Maintain process of log or practical book

- Write practical with specific detail, description, process and drawing manually
- All practical should be signed by respective teacher and head of the department/Coordinator
- All student must bring practical log book/ report in final examination
- Final examination will be based on practical

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