

CURRICULUM OF
BACHELOR OF SCIENCE IN PUBLIC HEALTH
(BSPH)
(2021)



HEALTH SERVICES ACADEMY

GOVERNMENT OF PAKISTAN

Ministry of National Health Services, Regulation & Coordination

Islamabad

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BACHELOR OF SCIENCE IN PUBLIC HEALTH (BSPH)

Vision Statement

The BS Program envisions excellence in public health teaching, training and capacity building through providing broad perspectives of health and health-care and innovation, critical-thinking and lifelong learning skills into health-care settings. It will strive to acquire methods to propagate knowledge that will be useful for the furthering of Public Health Education into Masters' and Doctoral programs.

Mission Statement

The mission of the Bachelor of Science in Public Health (BSPH) is to preserve, promote, and improve the health and well-being of populations, communities, and individuals.

Goal of the BSPH Program

The BSPH program aims to improve the health status of the population, which is to be achieved by providing professionals with a high quality of undergraduate training program in public health sciences.

Objectives of the Program

1. Produce competent, committed and skilled public health professionals.
2. Provide foundation for choosing a relevant Track in Public Health in future.
3. Prepare skilled workforce in public health auxiliary and support services
4. Prepare leadership in public health.
5. Develop, administer and evaluate health policies and programs.
6. Participate directly in efforts to improve the health of the community using community-based and health systems' assessment of preventive services.
7. Conduct basic and applied research relevant to the description, risk factors and interventions for the resolution of health problems in the human populations.

The graduates of the BSPH program will be prepared to

1. Solve health-related problems within the financial, socio-cultural, environmental, ethical and political framework of Pakistan and its surrounding region.
2. Design, conduct, analyze and interpret the results of relevant studies, projects and programs.
3. Plan, manage, and evaluate interventions in the field of public health.
4. Communicate public health messages to diverse audience effectively using diverse tools of communication.
5. Advocate simple public health interventions and practices with equity.

Core Competencies:

At the end of the program, the graduate is expected to:

1. Detect, prevent and manage common public health problems in Pakistan
2. Acquire basic computer skills
3. Supervise, monitor and manage public health issues
4. Be effective communicator
5. Practice and promote professional ethics
6. Conduct basic research and prepare reports
7. Analyze health system problems
8. Develop critical thinking and creativity
9. Create cultural context in which public health professionals work
10. Involve community dynamics and networking
11. Prepare for health advocacy, teamwork and leadership and professionalism

Admission Criteria:

- FSc/FA and equivalent with minimum 2nd division

SCHEME OF STUDIES

Structure of the Program

The normal duration of a 4-year Bachelor of Science in Public Health (BSPH) programme is four (04) years. Each academic year consists of two semesters.

There shall be two semesters in an academic year (Fall semester and Spring Semester). Each semester shall be of 18 weeks for teaching and one week for Mid-Semester Examinations. Final Examination shall be conducted by the University at the end of each semester.

Sr.	Categories	No. of Courses	Credit Hours
1.	Compulsory Courses	09	28
2.	General Courses	07	21
3.	Discipline Specified Courses	07	31
4.	Major Courses (including research project/internship)	15	45
5.	Elective within the major	04	12
Total		42	137

Scheme of Studies - Semester Distribution

Semester	Course Code	Course Title	Credit Hours
First Semester	PHC - 611	English 1	3
	PHC - 612	Pakistan Studies	2
	PHC - 613	Mathematics	3
	PHG - 614	Life Sciences Biology	3
	PHG - 615	Sociology of Health & Disease	3
	PHC - 616	Basic Computer Literacy	3
Second Semester	PHC - 621	English 2	3
	PHC - 622	Ethics/Islamic Studies	2
	PHC - 623	Bio-Statistics I	3
	PHG - 624	Principles of Psychology	3
	PHG - 625	Medical Anthropology	3
	PHD - 626	Personal Hygiene	3
Third Semester	PHC - 631	English 3	3
	PHC - 632	Basic Computer Skills	3
	PHG - 633	Population Dynamics	3
	PHG - 634	Primary Health Care	3
	PHD - 635	Concept of Health & Disease	3
Fourth Semester	PHC - 641	English 4	3
	PHG - 642	Professional Ethics	3
	PHD - 643	Basic Epidemiology	3
	PHD - 644	Biostatistics - II	3

	PHD - 645	Health Promotion, Advocacy & Social Mobilization	3
Fifth Semester	PHD - 651	Community Nutrition	3
	PHD - 652	Community Pediatrics	3
	PHM - 653	Fundamental Principles of Infectious Diseases	3
	PHM - 654	Applied Epidemiology I - Communicable Disease	3
	PHM - 655	Health Professional Education	3
Sixth Semester	PHD - 661	Reproductive Health	3
	PHD - 662	Environmental & Occupational Health	4
	PHM - 663	Health Policy & Management	3
	PHM - 664	Health Planning	3
	PHM - 665	Fundamentals of Health Systems	3
	PHM - 666	Applied Epidemiology II - Non-Communicable Disease	3
Seventh Semester	PHD - 671	Mental Health	3
	PHM - 672	Applied Epidemiology III – Nutrition and Environment	3
	PHM - 673	Research Methodology	4
	PHE – 6E	Elective 1	3
	PHE – 6E	Elective 2	3
	PHM - 676	Research Project	4
Eight Semester	PHM - 681	Microbiology	3
	PHM - 682	Entomology	3

	PHM - 683	Parasitology	3
	PHE – 6E	Elective 3	3
	PHE – 6E	Elective 4	3
	PHM - 686	Research Project	4
Electives	PHE – 6E1	Prison Health	3
	PHE – 6E2	International Health	3
	PHE – 6E3	Health Economics	3
	PHE – 6E4	Health Financing	3
	PHE – 6E5	Health Inventory Management	3
	PHE – 6E6	Disaster Management	3
	PHE – 6E7	Quality Management in Health Care\	3
	PHE – 6E8	School Health	3
	PHE – 6E9	Health Information System	3
	PHE – 6E10	Health Project Management	3
	PHE – 6E11	Art and Public Health	3
	PHE – 6E12	Community Dentistry	3
	PHE – 6E13	Community Psychiatry	3
	PHE – 6E14	Community Nursing	3
	PHE – 6E15	Food Safety	3
	PHE – 6E16	Health Marketing	3
	PHE – 6E17	Addiction and Social Rehabilitation	3
	PHE – 6E18	Nuclear Medicine	3

	PHE – 6E19	Sports Medicine	3
	PHE – 6E20	Adolescent and Sexual Health	3
	PHE – 6E21	Risk Management	3
	PHE – 6E22	Geriatrics	3

DETAIL OF COURSES
(Objectives and Contents of the courses)

1. Compulsory requirement (No Choice)

1.1	English I (Functional English)	Annexure A
1.2	English II (Communicational Skills)	Annexure B
1.3	English III (Technical Writing)	Annexure C
1.4	English IIII (Any other subject can be offered)	Annexure C
1.5	Pak-Studies	Annexure D
1.6	Islamic Studies	Annexure E
1.7	Mathematics I (Algebra)	Annexure F
1.8	Basic Biostatistics I	Annexure G
1.9	Introduction to Information and Communication Technologies	Annexure H

2. General Courses

2.1 Life Sciences Biology

Learning Outcomes:

After studying this course, you should be able to:

1. Demonstrate a broad basic knowledge of the biological sciences.
2. Demonstrate a thorough understanding and competency in a specific discipline within the biological sciences.
3. Communicate scientific ideas effectively in both oral and written formats.
4. Think critically and evaluate, design, conduct and quantitatively assess innovative research in a biological discipline.
5. Have acquired the skills and knowledge needed for employment or advanced graduate or professional study in discipline related areas.

Course Contents:

1. Studying Life
2. Small molecules and chemistry of life
3. Routine carbohydrates & lipids
4. Nucleic Acids & origin of life
5. Cells: The working unit of life
6. Cell membranes
7. Cell Communication & Multicellularity
8. Energy Enzymes & metabolism
9. Pathway that harvest chemical energy
10. Photosynthesis
11. Cell Cycle & Cell division
12. Inheritance, Genes & Chromosomes
13. DNA and its role in inheritance
14. Gene mutation & Molecular Genetics
15. From DNA to protein: Gene Expression
16. Regulation of gene expression
17. Genomes
18. Recombinant DNA technology
19. Gene expression & Development
20. Gene evolution
21. Mechanism of evolution
22. Evolution of gene & genomes
23. History of life and earth

Recommended Reading:

1. Erwin Schrödinger – What is Life? – Cambridge University Press
2. Craig Heller, David Sadava, David Hillis, May Berenbaum - Life: The Science of Biology
3. David Sadava - Life: The Science of Biology

2.2 Sociology of Health & Diseases

Learning Outcomes:

After studying this course, you should be able to:

- Discuss the social contexts of wellness and illness
- Explain the patient's perspective on the experience of illness including meaning making and interaction with care providers
- Examine the social-historical transformation of the medical system in the U.S., including the changing role of physicians and other health care providers
- Interpret visual and written depictions of indicators and trends in population health over time
- Identify the socio-cultural aspects of health and illness, particularly as relating to the definitions of health, illness behavior and social epidemiology
- Investigate the social causes of disease and illness related to disparities due to social stratification and unequal access
- Describe the historical role of women in the medical system as patients, practitioners and health care providers
- Differentiate the current ethical issues and debates about new medical technologies and their impact on doctor-patient relationships and on access to health care

Course Contents:

1. Evolution of Health & Healing,
2. Body, Mind, Illness and Environment
3. Theories, research and debates of medical sociology.
4. Social, environmental and occupational factors in health and illness;
5. The meaning of health and illness from the patient's perspective;
6. The historical transformation of the health professions and the health work force;
7. The social and cultural factors surrounding the creation and labeling of diseases;
8. Disparities in health, access to healthcare, and the quality of healthcare received;
9. Organizational and ethical issues in medicine including rising costs and medical technology; and health care reform.

Recommended Reading:

1. Bird, Chloe E., Peter Conrad, and Allen E. Fremont. 2000. "Medical Sociology at the Millennium." Pp. 1-10 in *Handbook of Medical Sociology, Fifth Edition*, edited by C.E. Bird, P. Conrad, and A. Fremont. Upper Saddle River, NJ: Prentice-Hall.
2. Link, Bruce, and Jo Phelan. 2010. "Social Conditions as Fundamental Causes of Health Inequalities." Pp. 3-17 in *Handbook of Medical Sociology, Sixth Edition*, edited by C. E. Bird, P. Conrad, A. M. Fremont and S. Timmermans. Nashville: Vanderbilt University Press
3. Shim, Janet. 2005. "Constructing 'Race' Across the Science-Lay Divide: Racial Formation in the Epidemiology and Experience of Cardiovascular Disease." *Social Studies of Science* 35: 405-436.
4. Prof. Saadat Farooq: Medical Sociology. Azeem Academy Karachi

2.3 Principles of Psychology

Description:

Surveys the basic concepts of psychology. Covers the scientific study of behavior, behavioral research methods and analysis, and theoretical interpretations. Includes topics that cover

physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology.

Learning Outcomes:

After studying this course, you should be able to:

- Identify the major fields of study and theoretical perspectives within psychology and articulate their similarities and differences
- Differentiate between the major observational, correlational, and experimental designs used by psychologists; critically evaluate real world information sources.
- Identify the major parts of the nervous system including the brain and explain how they reciprocally influence emotion, behavior, and mental processes.
- Explain how people change physically, mentally, emotionally, and socially over the course of the life span using the major concepts of development
- Define consciousness and describe altered states of consciousness including sleep
- Differentiate between sensation and perception; articulate the major sensory pathways and how/where perceptual modifications can/does occur.
- Understand and describe major theories of motivation and be able to apply them to their own behavior
- Explain how organisms learn through classical conditioning, operant conditioning, and observational learning.
- Identify processes involved in the encoding, storage, and retrieval of information and how these processes impact the student's memory.
- Explain how people think using concepts, solving problems, and making judgments;
- Identify the major theoretical perspectives of personality and articulate their similarities and differences
- Differentiate between abnormal and normal behavior; identify the symptoms of major psychological disorders and explain what roles biological, psychological, and socio-cultural factors play in causing these disorders.

Course Contents:

1. The Scope of Psychology
2. The Functions of the Brain
3. On Some General Conditions of Brain-Activity.
4. Habit
5. The Automaton-Theory
6. The Mind-Stuff Theory
7. The Methods and Snares of Psychology
8. The Relations Of Minds To Other Things.
9. The Stream of Thought.
10. The Consciousness of Self.
11. Attention.
12. Conception.
13. Discrimination and Comparison.
14. Association.
15. The Perception of Time.
16. Memory.
17. Sensation.
18. Imagination.
19. The Perception of 'Things'

20. The Perception of Space.
21. The Perception of Reality.
22. "Reasoning."
23. The Production of Movement.
24. Instinct
25. The Emotions.
26. Will.
27. Hypnotism.

Recommended Reading:

1. Taylor - Health Psychology – 5th Edition – McGraw-Hill
2. Andrew Balim, Tracy A. Revenson – Handbook of Health Psychology
3. Jess Fiest, Linda Brannon – Introduction to Behavior and Health

2.4 Medical Anthropology

Learning Outcomes:

After studying this course, you should be able to:

- Discuss the ways in which ideas regarding health, illness, and treatment are socially constructed
- Analyze biomedicine as a cultural system and the nature of its spread around the globe
- Recognize the value of anthropology in understanding medicine and healing
- Break down complex academic journal articles into thesis, main points, and supporting evidence
- Conduct and present independent research on current popular health topics
- Successfully apply the arguments presented in academic articles to non-anthropological writing

Course Contents:

1. Introduction of Medical Anthropology
2. Culture and social aspects of the body, health, sickness and illness in the cross cultural prospective
3. Effects of culture on health
4. Medicalization
5. Authoritative knowledge and belief
6. Global inequities
7. The phenomenology of disability, death and role of medical schools
8. Understanding interpretive approaches, critical theory and phenomenology

Recommended Reading:

1. Fadiman, Anne 1997 *The Spirit Catches You and You Fall Down: A Hmong Child, Her American Doctors, and the Collision of Two Cultures*. Farrar, Straus, and Giroux.
2. Lock, Margaret 2002 *Twice Dead: Organ Transplants and the Reinvention of Death*. Berkeley: University of California Press.
3. Montross, Christine 2007 *Body of Work: Meditations on Mortality from the Human Anatomy Lab*. Penguin Books.
4. Murphy, Robert 1990 *The Body Silent: The Different World of the Disabled*. New York: W.W. Norton.

2.5 Population Dynamics

Learning Outcomes:

After studying this course, you should be able to:

- Define the demographic transition and explain its historical relevance
- Describe the principle mechanisms that are associated with declining mortality, fertility and migration as well as the relationship between these three processes.
- Analyze basic empirical relationships between demographic and socioeconomic conditions.
- Outline both macro and micro level processes of development and their relationship to population change.
- Recognize and relate the role of both gender and technology in specific contexts to show their importance in demographic change

Course Content:

1. Understanding demography and population dynamics
2. Demographic cycle
3. International demographic/population trends
4. Population dynamic in Pakistan
5. Life expectancy
6. Introduction to family planning
7. Population dynamics verses national economy
8. Population transition

Recommended Reading:

1. Boserup, Ester. 1965. *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure*. Routledge.
2. Bongaarts, John, W. Parker Mauldin, and James F. Phillips. 1990. "The Demographic Impact of Family Planning Programs." *Studies in Family Planning* 21(6):299–310.
3. Das Gupta, Monica. 1987. "Selective Discrimination Against Female Children in Rural Punjab, India," *Population and Development Review* 13(1).
4. Dyson, Tim. 2001. "A Partial Theory of World Development: The Neglected Role of the Demographic Transition in the Shaping of Modern Society." *International Journal of Population Geography* 7(2):67–90.
5. Eastwood, Robert, and Michael Lipton. 2011. "Demographic Transition in sub-Saharan Africa: How Big Will the Economic Dividend Be?" *Population Studies* 65(1).
6. K. Park – Preventive and social medicine

2.6 Primary Health Care (PHC)

Learning Outcomes:

After studying this course, you should be able to:

- Define PHC and describe its core concepts
- Summarize the key factors that resulted in the development of PHC
- Explain the key principles and essential components of Comprehensive PHC
- Differentiate between Selective and Comprehensive PHC
- Enlist major achievements of PHC
- Describe organization of PHC services in Pakistan

Course Contents:

1. Introduction and Philosophy of PHC & HFA
2. Principles of PHC
3. Essential components of PHC
4. Barriers in implementation of PHC
5. Organization of PHC Services in Pakistan-1
6. Introduction to MDG's and SDG's
7. Introduction to National Health Programmes

Recommended Reading:

1. Principles of PHC. WHO
2. Strengthening PHC's in developing countries
3. PHC and MDG's. UNDP
4. Philosophy of PHC
5. WHR 2008

2.7 Professional Ethics

Learning Outcomes:

After studying this course, you should be able to:

- Ability to engage in informed critical reflection on the nature of professionalism and ethical challenges inherent in professionalism
- Knowledge of prominent normative ethics frameworks – consequentialist, deontological, virtue, and contractualism
- Awareness of types of ethical challenges and dilemmas confronting members of a range of professions (business, media, police, law, medicine, research)
- Ability to bring to bear ethical analysis and reasoning in the light of normative ethics frameworks on a selection of ethical challenges and dilemmas across the chosen range of professions
- Ability to relate ethical concepts and materials to ethical problems in specific professions and professionalism
- Ability to research appropriate material in relation to set questions in writing essays meeting the highest standards of rigor and clarity

Course Contents:

1. Understanding of the ethical problems and principles.
2. Understanding of the professionalism and ethics of other professions: how they interact and what can be expected from them as correct ethical behavior.
3. Benefit from a critical scrutiny of their own ethics by those from other professions.
4. The general principles of professional ethics.
5. Ethics of several major professions: Business Ethics, Media Ethics, Police Ethics, Medical Ethics, Legal Ethics, and Research Ethics.
6. The nature of a profession, professional codes of ethics, confidentiality, whistle-blowing.
7. The responsibility of business to the environment, uses and abuses of human research.
8. Animal ethics in research.

Recommended Reading:

1. Ethics for the Professions. John Rowan & Samuel Zinaich, Jnr. Wadsworth. 2003
2. Joan C. Callahan, Ethical issues in professional life, Oxford University Press, 1988.
3. Alan H. Goldman, The moral foundations of professional ethics, Rowman and Littlefield, 1980
4. Ruth F. Chadwick, (ed.) Ethics and the professions, Avebury, 1994.
5. Justin Oakley, Dean Cocking, Virtue ethics and professional roles. Cambridge University Press, 2001

3. Discipline Specific Foundation Courses

3.1 Personal Hygiene

Learning Outcomes:

After studying this course, you should be able to:

- Understand the importance of Personal Hygiene
- Identify the effects of eugenics on community
- Identify relationship of personal hygiene with disease
- Describe how personal hygiene improves health of individuals

Course Contents:

1. Introduction to Personal Hygiene
 - Handwash
 - Eye hygiene
 - Hair hygiene
 - Body hygiene
 - Oral hygiene
 - Nails and cuticles
 - Feet and shoes
 - Protection from noise and UV Light
 - Control of foul odour
2. Role of personal hygiene in communicable and Non communicable diseases
3. Types of cleanliness (intrinsic & extrinsic)
4. Prevention of cough cold and other contagious disease
5. Smoking and protecting rights of others
6. Personal hygiene at home
 - Clothes
 - Kitchen
 - Washroom
7. Personal hygiene at schools
8. Personal hygiene at surroundings
9. Personal hygiene at work place
10. Cleanliness and religion

Recommended Reading:

1. Healthy Living. Web Health Center

2. Sharon O Neil. Personal Hygiene Basic. Live Strong.com
3. Beth W Ornstein. A Guide to good personal hygiene. Everyday health.com
4. Virginia Smith. Clean: A History of Personal Hygiene and Purity. Oxford University Press

3.2 Concept of Health and Disease/Fundamentals of PH

Learning Outcomes:

After studying this course, you should be able to:

- Define and understand concept of health
- Identify determinants of health
- Enumerate the indicators of health
- Understand the concept of disease causation
- Understand iceberg of disease phenomenon
- Understand the levels of prevention
- Cover basic definitions and historical background of public health

Course Contents:

1. Concept of health
2. Dimensions of health
3. Definition of health
4. Health spectrum
5. Determinants of health
6. Responsibility of health
7. Indicators of health
8. Concept of disease
9. Concept of causation
10. Levels of prevention
11. Historical background of public health
12. Evolution of public health
13. Definitions of common public health terms
14. Health for all

Recommended Reading:

1. Basch PF. Textbook of international health, 2ndEd. New York, NY: Oxford University Press.
2. Brownson RC, Baker BA, Leet TL, Gillespie KN. Evidence-based public health. New York, NY: Oxford University Press; 2003.
3. Detels R, McEwen J, Beaglehole R, Tanaka H, (eds.). Oxford textbook of public health: the practice of public health, 4thed. Oxford: Oxford University Press; 2002.

3.3 Basic Epidemiology

Learning Outcome:

After studying this course, students should be able to:

- Understand the concept of Epidemiology, Epidemiological Studies and its application and uses in controlling Public Health problems
- Explain and practise some key techniques in epidemiology

- Understand some routine methods of data analysis
- Apply these techniques in a practical sense

Course Contents:

1. Introduction to Epidemiology
2. Measures of Disease Frequency: Prevalence and Incidence
3. Measures of Mortality
4. Descriptive Study Designs
5. Analytical Study Designs
6. Measures of Association
7. Criteria for Causation

Recommended Reading:

1. R. Beaglehole, R. Bonita, T.Kjellstrom Basic epidemiology AITBS India
2. Leon Gordis Epidemiology W.B. Saunders co.
3. Mausner JK, BAHN AK Epidemiology: An Introductory Text 3rd W.B. Saunders co.

3.4 Biostatistics - II

Learning Outcomes:

After studying this course, you should be able to:

- Present & Interpret data in tabular and graphical forms
- Apply the basic rules of probability
- Summarize data using the appropriate measures of central tendency and variation
- Apply the principles of normal distribution on a population and on sample means
- Determine the required sample size for a given level of significance
- Determine & Interpret the confidence interval for sample means and proportions
- Apply the appropriate test of significance to test the hypothesis on a given data set

Course Contents:

1. Introduction to Biostatistics and its Application in Research
2. Data: its Types, Sources and uses
3. Organizing and Displaying Data
4. Measures of Central Tendency and Measures of Dispersion
5. Introduction to Statistical Software
6. Probability
7. Normal Distribution
8. Sampling Techniques
9. Confidence Intervals for Mean
10. Confidence Intervals for Proportion
11. Hypothesis Testing
12. Introduction to Tests of Significance
13. Correlation and Regression

Recommended Reading:

1. Pagano, Gauvreau Principles of Biostatistics 2nd Thomson
2. Rosner Fundamentals of Biostatistics 6th Thomson
3. Daniel WW Biostatistics: A Foundation for analysis in Health Sciences 5th

(1990) Joh Wiley and Sons

3.5 Health Promotion, Advocacy and Social Mobilization

Learning Outcomes:

After studying this course, you should be able to:

- Describe the concept of health and its determinants
- Define Health Promotion and Develop an understanding about evolution of health promotion
- Explain the models of Health promotion
- Recognize the cultural diversities in Health Promotion
- Learn various strategies and methods for Health Promotion

Course Contents:

1. Concept and Determinants of Health
2. Health Literacy and Health Communication
3. Introduction of Health Education
4. Introduction to Health Promotion
5. Ottawa Charter, Jakarta Declaration, Healthy Cities 2000
6. Advocacy, Community Participation, Enablers and Healthy Public Policy
7. Approaches to Health Promotion
8. Cultural Diversity in Health Promotion
9. Intervention Programs
10. Social Mobilization

Recommended Reading:

1. Garry Egger, Ross Spark, Rob Donovan Health Promotion Strategies and Methods 2nd McGraw-Hill
2. Pakistan Medical Corps Health Education Handout Pakistan Medical Corps
3. Raingruber B Health Promotion Theories Jones and Barlett Learning
4. Naidoo Foundations for Health Promotion Elsevier Health Sciences
5. National Institute of Health England: HPR 850 Theory at a glance: A guide for Health Promotion Practice National Institute of Health England: HPR 850

3.6 Community Nutrition

Learning Outcomes:

After studying this course, you should be able to:

- Identifying target populations that may be at nutritional risk
- Identifying and assisting in development of accurate nutrition education materials
- Demonstrate accurate understanding of the science of normal nutrition
- Communicate effectively, both orally and in writing
- Conduct needs assessments and develop nutrition interventions for individuals, groups and communities
- Use effective teaching strategies for individuals, groups, or through community education programming
- Apply understanding of the influence of socioeconomic, cultural, social, psychological, and ethnic food consumption issues and trends to nutrition practice
- Demonstrate professional attributes including time management, priority setting, work ethic, critical thinking, advocacy, and service to professional and community organizations
- Demonstrate active participation, teamwork and contributions in group settings

Course Contents:

1. Introduction to Human Nutrition and Balanced Diet
2. Identification of Population at Risk
3. Factors Contributing to Community Nutritional Disorders
4. Healthy Nutrition for Pregnant Women, Lactating Mothers and Children
5. Problems Related to Procurement, Storage, Supply and Distribution of Food to the Vulnerable Groups
6. Adequate Supply of Food (quality and quantity)
7. International Food Organizations (WFO etc)
8. Politics in Food Supply
9. Food Supply to Drought , Earthquake, War and Refugees
10. Management of Nutritional Disorder Diseases in Communities

Recommended Reading:

Author Books Hard/Online

1. Concepts of community medicine
2. Research Methodology and basic biostatistics
3. Community Medicine
4. J. E Park: Preventive and social medicine
5. Muhammad Ilyas; Public health and community medicine
6. US AID Nutrition
7. Nouman Hashmi Community Medicine
8. Arlene Spark Nutrition in public health
9. A Burgess, M Bijlsma, Community Nutrition

3.7 Community Pediatrics

Learning Outcomes:

After studying this course, you should be able to:

- Establish public health perspective on child health
- Develop essential skills for neonatal care
- Monitor child growth and development
- Perform appropriate clinical and anthropometric assessments for the nutritional status of infants and children
- Assess, classify and describe appropriate treatment for sick children below the age of five years according to the principles of the Integrated Management of Childhood Illness
- Determine the nutritional requirements and the most common nutritional disorders affecting infants and children
- Familiarize with current child health programs

Course Contents:

1. Neonatal Care
2. Growth Monitoring
3. Promotion of Breastfeeding
4. Oral Rehydration
5. Immunization
6. Community Feeding
7. Nutritional Surveillance
8. Regular Health Check-ups

Recommended Reading:

1. Maternal and Child Health-Management Sciences for health. (www.msh.org)
2. Child Health: eBook. ecog-obesity.eu
3. Child growth standards and the identification of severe acute malnutrition in infants and children. A Joint Statement by the World Health Organization and the United Nations Children's Fund
4. K. Park – Prevention and social Medicine

3.8 Reproductive Health

Learning Outcomes:

After studying this course, you should be able to:

- Define Reproductive Health and Reproductive Lifecycle
- Identify the underlying determinants of reproductive health
- Describe the causes and prevention of underlying issues

Course Contents:

1. Introduction to Reproductive Health and Life Cycle Approach
2. ICPD
3. Reproductive Behavior
4. Safe Motherhood
5. Breastfeeding
6. Contraception
7. STI's
8. Reproductive Health Rights
9. Gender Power and Reproductive Health

10. Infertility

Recommended Reading:

1. Catriona Melville Sexual and reproductive health at a glance John Wiley & Sons limited
2. Paul. F.A VAN LOOK Sexual and reproductive health; A public health perspective. Academic Press (AP) in imprint of Elsevier
3. Kulczycki, Andrzej Critical issues in reproductive health DOI. 10.1007/978-94-007-6722-5_1 springer series+ Business media Dodrecht www.nap.edu
4. Barbara Anderson Reproductive health women & men's shared responsibilities. Jones & Barlette
5. Jonathan B. Kotch Maternal and child health. Jones & Barlette

3.9 Environment and Occupational Health

Learning Outcome:

After studying this course, you should be able to:

- Describe effects of environment on health
- Enforcement Policy
- Demands of the Health and Safety Service
- Training, Administration and Management Control
- Environmental Protection Inspection Service
- Licensing and Regulatory rule

Course Contents:

1. Air Pollution, its Hazards and Prevention
2. Noise Pollution, its Hazards and Prevention
3. Water Pollution, its Hazards and Prevention
4. Water Purification
5. Radiation, its Hazards and Prevention
6. Waste Management
7. Ozone Layer Depletion
8. Climate Change and Global Warming
9. Introduction to Occupational Health
10. Evolution of Occupational Health (Labor Movements)
11. Occupational Health Hazards and its Prevention
12. Work Place Safety
13. Prevention of hospital based health hazards in hospital workers
14. Social Security
15. Prevention of Gender Harassment

Recommended Reading:

1. Moore GS. Living with the earth: Concepts in environmental health science, 2nd Edition. Boca Raton, FL: Lewis Publishers;2002.
2. Sellers CC. Hazards of the job: from industrial disease to environmental health science. Chappel hill: University of North Carolina Press;1997
3. Vesilind PA, Pierce JJ. Environmental Pollution and Control, 4th Edition Boston MA: Butter worths Publishers, 1983.

3.10 Mental Health

Learning Outcomes:

After studying this course, you should be able to:

- Define Mental Health and cover the basic concepts of Community Mental Health
- Enumerate common mental health problems in Pakistan
- Learn to apply levels of prevention to mental health problems
- Understand the biological, psychosocial and socioeconomic factors affecting mental health
- Describe the main reasons of substance abuse

Course Contents:

1. Introduction to Mental Health
2. Prevention of Mental ill Health and Promote Mental Health
3. Risk and Protective Factors for Mental Disorders
4. Socioeconomic Determinants of Mental Health
5. Mental Health and Quality of Life
6. Strengthening Community Network
7. Reducing Harm from Addictive Substances
8. Prevention of Child Abuse and Neglect
9. Coping with Parental Mental illness
10. Management of Mental Health in Rehabilitation Centers

Recommended Reading:

1. Compton MT. Social Determinants of Mental Health. 2015 American Psychiatric Association
2. Larol S. Handbook of Sociology of Mental Health. 2nded. Springer 2012
3. R Streevani A guide to Mental Health & Psychiatric Nursing 2nd Jaypee
4. The ICD-10 Classification of Mental and Behavior Disorders, AITBS/WHO.

4. Major Courses Including Research Project/Internship

4.1 Fundamental of Infectious Diseases

Learning Outcomes:

After studying this course, you should be able to:

- Understand natural history of disease,
- List the common infectious diseases of public health importance
- Describe the global and national impact of common communicable diseases
- Discuss the strategies of control of common communicable diseases in Pakistan

Course Content:

1. Infection, Contamination, Pollution, Infestation, Infectious Disease, Communicable Disease, Contagious Disease
2. Host, Immune and Susceptible Person
3. Sporadic, Endemic, Epidemic, Pandemic, Epizootic, Exotic and Zoonotic
4. Contact, Fomites, Carriers, Vectors and Reservoir of Infection
5. Incubation, Infective, Prodromal Period and Generation Time
6. Cross Infection, Nosocomial, Opportunistic Infection and Iatrogenic Disorders
7. Surveillance, Eradication and Elimination
8. Reservoir and Source of Infections
9. Escape of Organism, Mode of Transmission, Entry Into the Body, Susceptible Host and Host Defenses (Immunity)
10. Controlling the Reservoir, Early Diagnosis and Treatment, Isolation, Quarantine, Disinfection Interruption of Transmission

Recommended Readings:

1. Mendel, Douglas, Bennets. Principles and Practices of Infectious Diseases.
2. Nelson KE. Epidemiology of Infectious diseases. General Principles. Jones and Barlet Publishers England

4.2 Applied Epidemiology I - Communicable Diseases

Learning Outcomes:

After studying this course, you should be able to:

- Understand Natural History of disease
- List common infectious disease of public health importance
- Describe the global and national impact of common communicable diseases
- Discuss the strategies of control of common Communicable Diseases in Pakistan

Course Content:

1. Disease Spread Through Respiratory Tract
2. GIT Infections
3. Vector-Borne Diseases
4. Zoonotic Diseases
5. Contagious Diseases
6. Surface Infections
7. Sexually Transmitted Infections

8. Emerging and Re-emerging Diseases

Recommended Reading:

1. Chanawongse K. Understanding primary health care management: from theory to practical reality. Bangkok: Buraphasilp Press; 1990.
2. Dicker RC, et. al. Principles of epidemiology: an introduction to applied epidemiology and biostatistics, 2nded. Atlanta, GA, USA: Centers for Disease Control and Prevention, 1992. Self-study course 3030-G. Available from: URL:http://www.phppo.cdc.gov/PHTN//catalog/pdf-file/Epi_Course.pdf

4.3 Applied Epidemiology II – Non-Communicable Diseases

Learning Outcomes:

After studying this course, you should be able to:

- Understand the importance of NCDs in Pakistan
- The awareness of the preventive strategies for NCDs
- Develop the health promotion strategies for NCDs
- Define and prevent injury, accidents and their types

Course Content:

1. Hypertension
2. Coronary Heart Diseases
3. Stroke
4. Cancers
5. Blindness
6. Diabetes Mellitus
7. Obesity
8. Injuries and Accidents

Recommended Reading:

1. Ministry of Health, Government of Pakistan, World Health Organization, Heartfile. National action plan for prevention and control of non-communicable diseases and health promotion in Pakistan: a public-private partnership in health. Islamabad, Pakistan: tripartite collaboration of the Ministry of Health, Government of Pakistan; WHO, Pakistan office, and Heart file; 2004. Available from: URL: <http://www.heartfile.org/pdf/NAPmain.pdf>
2. Ilene Moroflubkin, with Pamala D. Larsen Chronic Illness 4th Jones & Bortlett Publishers

4.4 Health Policy and Management

Learning Outcomes:

After studying this course, you should be able to:

- Demonstrate understanding of human, social and economic dynamics of organizational behavior
- Develop competency in making effective managerial decisions under conditions of uncertainty
- Demonstrate capacity to apply conceptual framework for understanding political and policy process in healthcare

- Understand basic organization, financing and delivery of health service and public health systems

Course Content:

1. Introduction to Health Management
2. Strategic Management
3. Planning
4. Organization
5. Monitoring
6. Evaluation
7. Pakistan Health Policy 2009
8. Health Financing
9. Stewardship
10. History of Health Policy in Pakistan
11. Determinants of health policy

Recommended Reading:

1. Chanawongse K. Understanding primary health care management: from theory to practical reality. Bangkok: Buraphasilp Press; 1990.
2. Gourlay R. Training manual on health manpower management (8 volumes). Geneva: Division of Health Manpower Development, World Health Organization; 1988. Document no. WHO/EDUC/88.195.
3. McMahan R, Barton E, Ross F. On being in charge: a guide to management in primary health care, 2nded. Geneva: World Health Organization; 1992.
4. Reinke WA. Health planning for effective management (HPEM). New York, NY: Oxford University Press; 1988.
5. Shortell SM, Kaluzny AD. Health care management, 3rded. Albany, NY: Thompson Delmar Learning; 2000.
6. World Health Organization. The world health report 2000: Health systems – improving performance. Geneva: World Health Organization; 2000. Available from: URL: http://www.who.int/entity/whr/2000/en/whr00_en.pdf

4.5 Health Planning

Learning Outcomes:

After studying this course, you should be able to:

- Familiarize the students with the basic concept of planning, planning models, techniques and tools
- Understand the functions of planning machinery of Pakistan
- To understand the important terminology related to health planning for its implementation wherever required

Course Content:

1. Importance and Significance of Planning
2. Understanding the Planning Concepts
3. Planning Models
4. Types of Plans
5. Planning Process

6. Planning Tools
7. Planning Commission of Pakistan
8. Role of ECNEC in Planning
9. Planning for Planning

Reference Reading:

1. Green A. An introduction to health planning in developing countries, 2nd edition. Oxford: Oxford University Press; 1999.
2. Kielmann, AA, Janovsky K, Annett H. Assessing district health needs, services and systems: protocols for rapid data collection and analysis. London, UK: Macmillan Education Ltd and AMREF, 1995.
3. Green A. An Introduction to Health Planning in developing countries. ELBS London

4.6 Fundamentals of Health Systems

The course examines health care delivery systems internationally and explores contemporary issues affecting the institutions that provide health care and the people who seek health services. The course will cover the historical development of international health care systems, the organization and financing of systems of care, and the policy process and priority setting. Finally, the course will cover current efforts at health care reform. The goal of the course is to provide students with the necessary professional skills to be effective participants in efforts to evaluate and improve the delivery of health care nationally and internationally.

Learning Outcomes:

After studying this course, you should be able to:

1. Understand major trends in the international history of medicine and public health and relate them to current events nationally and internationally.
2. Identify the major determinants of health in developing and developed countries and the relative contributions of various health systems and services.
3. Describe the components of health care delivery systems and how the components work together, or fail to work together, to address population health issues.
4. Discuss the similarities and differences across countries in organizing, financing, managing and delivering health services to meet the health needs of their people.
5. Gather reliable and comparable health and health care quality data at national and international levels.
6. Understand the core elements of health policy-making including the roles of government and major stakeholders and major statutes affecting health care.
7. Describe contemporary policy issues in health care delivery including the role of managed care, quality of care, privacy and consumer protections.
8. Understand and weigh ethical considerations in the health care field.
9. Analyze, evaluate, and design options for reform of health care systems

Course Content:

1. Fundamental concepts in health care systems
2. Introduction to Healthcare Care Delivery System in developed and developing countries
3. Pakistan Healthcare system in context
4. Options for designing & financing systems

5. Comparing performance of health systems
6. Economic development, poverty and health
7. Vulnerable populations: Designing health programs to address international health disparities
8. Health care systems: Country Studies
9. International policy & leadership

Recommended Reading:

1. Kielmann AA, Siddiqi S, Mwadime RK. District health planning manual: toolkit for district health managers. Islamabad, Pakistan: Multi-donor Support Unit, Ministry of Health; 2002.
2. Manual of Epidemiology for District Health Management. J. P. Vaughan, R. H. Morrow World Health Organization, 01-Jan-1989 Medical 198 page
3. Nabeela Ali. District Health Management Team. *PAIMAN. Contech International Health Consultants*
4. Lantz PM, Lichtenstein RL, Pollack HA. Health policy approaches to population health: the limits of medicalization. *Health Aff (Millwood)*. 2007 Sep-Oct;26(5):1253-7
5. *Boslaugh, S Health Care Systems Around the World: A Comparative Guide*
6. *Johnson, J Comparative Health Systems: A Global Perspective*

4.7 Applied Epidemiology III – Nutrition and Environment

Learning Outcomes:

After studying this course, you should be able to:

- Apply measures of disease frequency in Public Health using descriptive and cross-sectional surveys
- Describe further statistical procedures in Cohort and case-control studies
- Interpret the results of a study investigating the effects of Confounding, Bias and Chance.
- Describe the methods adopted to control for Confounding, Bias, and Chance in a study.
- Describe and interpret the results of an experimental study design investigating the possible sources of bias and its control in study designs and statistical analysis.
- Apply screening in disease control.
- Use the tests of significance for parametric data: three or more independent groups of observations (ANOVA)
- Use the tests of significance for categorical data:
- Use non-parametric tests for a single or more than one samples e.g. Wilcoxon's Rank sum tests, Mann-Whitney U-tests etc.
- Investigate the relationship and association of two or more continuous variables using regression, correlation and interpretation and presentation of correlation.
- Evaluation of interventions using appropriate epidemiological and statistical methods.

Course Contents:

1. Disease Frequency: Incidence and Prevalence
2. Proportional Morbidity and Mortality
3. Details of Measures of Association and Inference in Cohort and Case Control Studies
4. Application and Interpretation Issues in Screening Applied to Disease Control
5. Experimental Study Designs: Application and Interpretation of the Results
6. Application and Interpretation of Parametric Test: ANOVA in Experimental and other Study Designs.
7. Application and Interpretation of Non-Parametric Tests: Chi Square Test for Several Proportions, $n \times k$ Tables and Tables with Ordered Data, Fisher's Exact Test, Non-parametric Tests for a Single or More than one samples e.g. Wilcoxon's Rank Sum Tests, Mann-Whitney U-tests.
8. Application and Interpretation of Regression, Correlation Coefficients, Coefficient of Determination in study Results.

Recommended Reading:

1. R. Beaglehole, R. Bonita, T.Kjellstrom Basic epidemiology AITBS India
2. Leon Gordis Epidemiology W.B. Saunders co.
3. Mausner JK, BAHN AK Epidemiology: An Introductory Text 3rd W.B. Saunders Co.
4. Pagano, Gauvreau Principles of Biostatistics 2nd Thomson
5. Rosner Fundamentals of Biostatistics 6th Thomson
6. Daniel WW Biostatistics: A Foundation for analysis in Health Sciences 5th (1990) John Willey and Sons.

4.8 Research Methodology

Learning Outcomes:

After studying this course, you should be able to:

- Importance of Qualitative and Quantitative Research
- Develop research protocol
- Critical appraisal of research paper
- Writing research paper

Course Content:

1. Introduction to Research Methodology
2. Types of Research
3. Selection of Research Topic
4. Formulation of Objectives
5. Literature Search
6. Writing Introduction
7. Plagiarism
8. Writing Methodology
9. Data Collection/Questionnaire Design
10. Analysis and Interpretation
11. Report Writing
12. Timeline (Gantt Chart)
13. Budget Plan
14. Research Ethics

Recommended Reading:

1. Varkivisser CM. WHO. Designing and Conducting Health System Research Projects. International Development Research Center
2. Abramson JH, Abramson ZH. Survey Methods in Community Medicine. 5th Edition. Churchill Livingstone
3. Taylor, Sinha, Ghoshal Research Methodology PHI
4. Martin Brett Davies Doing a successful Research Project Palgrave
5. S.R. Singh Research Methodology APH

4.9 Microbiology

Learning Outcomes:

After studying this course, you should be able to:

- Familiarize students with fundamental concept of Microbiology

Course Content:

1. Fundamentals of Microbiology
2. Introduction to Medical Microbiology
3. Gen. Immunology
4. Microbial Taxonomy
5. Gen. Virology
6. Mycology

Recommended Reading:

1. Black, J. G. 2005. Microbiology: Principles & Explorations, 6th edition, John Willey and Sons, N.Y. 2.
2. Talaro, K. P. 2008. Foundations in Microbiology: Basic Principles, McGraw-Hill Companies, N.Y. 3.
3. Tortora, G. J., Funke, B. R. and Case, C. L. 2008. Microbiology: an introduction 9th edition, Pearson Education.
4. Tortora, G. J., Funke, B. R. and Case, C. L. 2012. Study Guide for Microbiology: An Introduction. 11th edition. Benjamin-Cummings Publishing Company, U.S.A.

4.10 Entomology

Learning Outcomes:

After studying this course, you should be able to:

- Appreciate the value and importance of insects
- Understand the need for good management practices
- Learn about the classification, biology, ecology, behavior, and control of insects
- Identify major orders and families of insects
- Acquire skills for collecting, mounting, and preserving insects for scientific study

Course Contents:

1. Classification of Arthropod Vectors, General Characteristics of Arthropods, Mites & Ticks
2. Insects
3. Lice Bugs & Fleas
4. Flies
5. Mosquitoes
6. Common Arthropod Borne Diseases
7. Arthropods of Medical Importance (Mosquito, Flies, Flees, Ticks, Mites and Human Lice)
8. Principles of Arthropods Control (Environmental, Chemical, Biological and Genetics)
9. Insecticides and Their Public Health Importance

Recommended Reading:

1. Awastheir, V.B. 2009. Introduction to General and Applied Entomology. Scientific Publisher, Jodhpur, India.
2. Dhaliwal, G.S. 2007. An Outline of Entomology. Kalyani Publishers, Ludhiana.
3. Elzinga, R.J. 2003. Fundamentals of Entomology. Prentice Hall.
4. Gullan, P. J. and P. S. Cranston. 2010. The Insects: An Outline of Entomology. 4thed., Wiley-Blackwell. A John Willey & Sons, Ltd., Publication, UK.
5. Lohar, M.K. 2001. Introductory Entomology. Department of Entomology, Sindh Agriculture University, Tandojam Sindh, Pakistan.

4.11 Parasitology

Learning Outcomes:

After studying this course, you should be able to:

- Describe in details the life cycle of medically important parasites.

- Define the organs commonly involved in the infection.
- Recall the relationship of this infection to symptoms, relapse and the accompanying pathology.
- Arrange the factors that determine endemicity of the parasite infection
- State the distribution and epidemiology of the parasites
- Explain the methods of parasite control, e.g. chemotherapy, molluscicides, general sanitation plus describing the advantages and disadvantages of each method.
- Demonstrate a broad understanding of the central facts and the experimental basis of modern Parasitology.
- Solve problems in the context of this understanding.
- Demonstrate practical skills in fundamental parasitological techniques.
- Present and interpret results obtained from using these techniques.
- Present information clearly in both written and oral form.

Course Content:

1. Identification of parasites
2. Life cycles.
3. Epidemiological factors.
4. Host-parasite relationships.
5. Immunity to parasites.

A. Protozoa

- Plasmodium and Malaria
- Entameoba Histolytica and Dysentery
- Giardia Lamblia and Giardiasis
- Trichomonas and Trichomoniasis
- Leishmania and Leishmaniasis

B. Helminths

- Taeniasaginata, Ancylostomaduodenale, Ascaris, enterobiusvermicularis and worm infestation

C. Ectoparasites

- Pediculushumanus and Head lice
 - Sarcoptesscabei and scabies
6. Recent molecular techniques.
 7. The appropriate preventive and control measures.

Recommended Reading:

1. Roberts LS, Janovy Jr J. 2009. Foundations of Parasitology, 8thed., McGraw-Hill, New York. 701 pp. ISBN 978-0-07-302827-9.
2. General parasitology-Thomas C Cheng
3. Medical parasitology-Markell and Voges
4. Foundation of parasitology-Roberts, Janovy
5. Human parasitology-Burton J Bogtish.

4.12 Health Professions Education

Learning Outcomes:

After studying this course, you should be able to:

1. Understand and apply educational research in health professions education.
2. Design evidence-based educational programs and materials with appropriate scope, sequence, and focus for learners.
3. Deliver effective, theory-based instruction in large group and small group.
4. Effectively use assessment tools to reflect student progress and to promote student learning.
5. Evaluate the effectiveness of programs, curricula and instructional events.
6. Provide reflective and evidence-based leadership.

Course Contents:

1. Theories of learning and skill development
2. Student-centered learning, active learning, deep learning, collaborative learning
3. Conditions of learning: characteristics of powerful learning environments
4. Using reflective practice to promote learning
5. Educational principles and theories related to clinical teaching and learning
6. Identify different approaches to curriculum development and their underlying philosophies
7. Identify local, national and international drivers which shape curricula in medical education
8. Design and critique programmes (courses) and modules (components of courses) in medical education
9. Design and critique evaluation strategies and models for programs and modules
10. Develop assessment strategies
11. Design assessment tasks appropriate to a range of learning outcomes
12. Research approaches, methods and techniques in health professions education

Recommended Books:

1. A Practical Guide for Medical Teachers. Dent JA & Harden, RM (3rd Ed). Churchill Living Stone, Elsevier, 2009
2. ABC of Learning and Teaching in Medicine 2nd Ed. Cantillon & Wood, 2010
3. Assessment in Medical Education: Trends and Tools. Sood R, Paul VK, Mittal S, Adkoli BV, Sahni, P, Kharbanda OP, Verma, K., Nayar U.(eds). New Delhi: KL Wig CMET, AIIMS, 1995.
4. Basic Methods of Medical Research. Indrayan A (1st Ed), 2006.
5. Communication Skills in Clinical Practice. Sethuraman KR (1st Ed) Jaypee Brothers, 2001.
6. Educational Handbook for Health Personnel. Guilbert JJ (6th Ed). WHO, 1987

4.13 Field Visits

4.14 Seminars by students

4.15 Research Project

5. ELECTIVES WITHIN THE MAJOR

5.1 Prisons Health

Learning Outcomes:

After studying this course, you should be able to:

- Understand the health and social problems of Prisoners
- Provide Counseling services for prevention and rehabilitation of prisoners leading to skillful productive citizens
- Understand the most common criminal events and communicable diseases in prison

Course Content:

1. Introduction to Prison Health
2. Standards in Prison Health
3. Protecting and Promoting Health in Prison
4. Primary Health Care in Prisons
5. Prison Specific Ethical and Clinical Problems
6. Prevention of Common Infectious Diseases in Prisoners
7. Special Health Requirements for Female Prisoners
8. Prevention of Violence and Trauma Among Prisoners
9. Vocational Training Opportunities
10. Treatment of Mental Ill Health Among Prisoners

Recommended Reading:

1. Micheal Puisis Clinical method in correctional Medicine Elsevier incorporation
2. Keith Soothill Prison & Health WHO Hand book of Forensic Mental Health

5.2 International Health

Learning Outcomes:

After studying this course, you should be able to:

- Familiarize the students regarding the international rules and regulations for travelers about the common internationally communicable diseases
- To know the restrictions imposable on travelers
- Describe the importance of culture, class, and gender on perceptions of health and illness, on health status, and on access to services
- Describe the health situation of a country using the concepts of demographic and epidemiological transition
- Delineate the difference between population-based and clinical approaches to health improvement and why population-based approaches are more effective in resource poor settings
- Explain how international health status is measured and communicated
- Discuss the ethical issues implicit in conducting research in the developing world
- Identify the key players in international public health
- Basic principles of international health, in order to give them a better understanding of the wider context of health systems and public health across various countries

Course Content:

1. Introduction to the Concept of International Health
2. International Health Organizations
3. Strengthening Health Security by implementing the international health regulations
4. Global System for Alert and Response
5. IHR in Context of Multi-Hazard Dimension
6. Country Capacity Building for International Health
7. International Travel, Health & Mass Gatherings
8. Public Health at Ports, Airports, Entry and Exit Points on Borders
9. IHR Procedure and Implementations

Recommended Readings:

1. Necil Nathanson Global Public Health
2. Anne Emanuelle Bim Textbook of International Health, Global health in dynamic world, 3rd Edition
3. Michael, Robert, Anne International Public Health

5.3 Health Economics

Learning Outcomes:

After studying this course, you should be able to:

- Interpret and appropriately apply the key concepts of economics within the context of the health system
- Debate the relative merits of equity considerations in setting priorities for a health system
- Understand approaches to identify and value costs and outcomes to include in economic evaluation
- Describe major types of economic evaluation and to understand their use in the decision-making process
- Recognise and apply key steps in critically reviewing economic evaluations
- Understand and describe the main features of the Australian health system- in particular how it differs from other salient national health systems according to how services are delivered and purchased
- Write concise reports on health economic issues demonstrating sound knowledge and skills to apply analytic thinking for a scientific debate and/or problem solving

Course Content:

1. Importance of Economics in Health System
2. Growth of Health Economics
3. Economic Principles
4. Wealth and Health
5. Health Needs Analysis
6. Health Sector Demands
7. Health Supplies
8. Cost Analysis
9. Cost Benefit Analysis
10. Cost Minimization Analysis
11. Cost Effectiveness Analysis

12. Cost Utility Analysis
13. Break Even Analysis
14. Uncertainty
15. Marginal Analysis
16. Economy of Health System of Pakistan

Recommended Readings:

1. Pearson The Economics of Health & Health Care, Folland, Goodman, Stano, 5th edition
2. David Kernick, Radcliffe Getting Health Economics into Practice, Medical Press
3. Kumaranayake, Normand Health Economics, MCPAKE, Routledge London & N.Y.

5.4 Health Financing

Learning Outcomes:

After studying this course, you should be able to:

- Orient students about the mechanism of financial resources and its disbursement
- Generate house based resources on health spending
- To enable the students to prepare quarterly and annual demands and financial reports

Course Content:

1. Overview of Health Financing
2. Sources of Health Financing
3. Sources and Mechanism of Health Financing in Pakistan
4. Quarterly and annually financial plans, inventories and auditing
5. Comparison of Health Finances in Global Perspective
6. Relationship Between Financing Instruments and Goals
7. Framework of Healthcare in Pakistan
8. Domestic Spending and Donor Assistance Comparisons
9. Effect of Devolution on Health Financing
10. Financing District Health Services
11. Role of Private Sector, Traditional Medicine and Ngo's
12. Models of health care services
13. Patients satisfaction

Recommended Readings:

1. Diane McIntyre Health Care Financing in Low & Middle-income countries
2. ECNEC & Budgeting Documents of Government of Pakistan
3. An introduction to Financial Management
4. A practitioner guide Health Financing World Bank.

5.5 Health Inventory Management

Learning Outcomes:

After studying this course, you should be able to:

- Optimize Inventory Levels
- Build an Inventory Management Plan

- Design & Manage Warehouse Operations
- Management of “in” & “out” record
- Increase Accuracy, Traceability & Reduce Parts Variety
- Reserved stock and reserved stock limit

Course Contents:

1. Introduction to Inventory Management
2. The Financial Implications of Holding Inventory: Inventory Carrying Cost, Effect on Financial
3. The Cost of not holding enough Inventory
4. Introduction to Effective Inventory Management
5. Inventory Management & the Supply Chain Strategy
6. Demand Forecasting
7. Lead time Management
8. Introduction to Inventory Planning
9. Inventory Categorization Techniques: ABC Analysis, Fast & Slow Moving, Excess, Obsolete & Defective Stocks
10. Traceability and Variety Reduction
11. Inventory Coding Systems and bin card management
12. The Inventory Management Plan
13. Introduction to Inventory Operations
14. Monitoring Movements: Inventory Accuracy
15. Measuring and Valuation of Inventory
16. Receipt & Issuance of Inventory
17. Systems to Replenish Inventory
18. Order planning (time, value & quantity)
19. Storage of vaccines and perishable items
20. Inventory management of disposables

Recommended Books:

1. Essentials of Inventory Management, by Max Muller (Basic Inventory Control)
2. Warehouse Management: A Complete Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse, by Gwynne Richards (Warehouse and Material Handling)
3. Supply Chain Network Design: Applying Optimization and Analytics to the Global Supply Chain, by Michael Watson et al (Distribution Management)
4. Inventory Accuracy: People, Processes, & Technology, by David J. Piasecki (Inventory Accuracy)
5. Inventory Strategy: Maximizing Financial, Service and Operations Performance with Inventory Strategy, by Edward Frazelle (Inventory Strategy)
6. Introduction to Materials Management, by Steve Chapman et al (Material Management)

5.6 Disaster Management

Learning Outcomes:

After studying this course, you should be able to:

- Basic Disaster Concepts
- Planning for disaster management
- Post disaster rehabilitation

- Disaster's effects on economy and health
- Students will recognize basic principles of public health as they relate to disaster management.
- Students will be able to apply critical thinking and decision making skills for given disaster scenarios.
- Students will identify and use appropriate concepts, theories, and principles towards the development of disaster preparedness and mitigation plans.

Course Content:

1. Concept of Disaster
2. Types of Disaster
3. Effect of Disaster on Health
4. Elements at Risk in Disaster
5. Disaster Management Cycle
6. Role of Public Health in Disaster
7. Role of NDMA in Managing Disaster
8. Health Education for Disaster Safety
9. Public Health Review
10. Interdisciplinary Disaster Planning
11. Community Level Preparedness
12. Disaster Mitigation and Post-Event Response
13. Risk Communications
14. Environmental Health Degradation
15. Mental Health Challenges of a Disaster
16. Monitoring and Evaluation of Recovery Efforts

Recommended Readings:

1. B. Narayan Disaster Management APH
2. Dr. S.R. Singh Disaster Management APH

5.7 Quality Management in Health care

Learning Outcomes:

After studying this course, you should be able to:

- Improve the quality of medical and behavioral healthcare
- Maintain a process for adopting and updating both preventive health guidelines
- Identify, develop and enhance activities that promote member safety and reduction in medical errors
- Ensure that quality of care and service delivered by delegates meet standards
- Document and report the results of monitoring activities

Course Content:

1. Introduction to Quality Management in Health
2. Evolution of Quality and its Standards
3. Quality Healthcare
4. Characteristics of Quality
5. Dimensions of Quality
6. Quality Principles
7. Quality Cycle & Circle
8. Quality Audit of Healthcare Services

Recommended Readings:

1. Willson Quality gurus in Health
2. Heizer & Nathan Total Quality Management, Manufacturing and Services
3. Ellen J. Gaucher & Richard J. Coffey Total Quality in Health Care
4. EFQM training/workshop workbook Quality Management in International Health Heidelberg University Germany

5.8 School Health

Learning Outcomes:

After studying this course, you should be able to:

- Describe the components of school health
- Review history of school health
- Develop school health program
- Establish role of personnel
- Delineate Roles and Responsibilities for the Safe Delivery of Specialized Health Care

Course Contents:

1. Objective of school health services
2. School health team
3. Duties of School medical officer
4. Duties of School health nurse
5. Medical inspection of school children
6. Common school health problems
7. Infectious diseases in schools
8. Healthy school environment
9. Role of teacher in school
10. School health services on Pakistan

11. Models of school health services
12. The Health Needs of School-Age Children
13. School health education program, Planning and implementation

Recommended Readings:

1. UNESCO Pakistan School Health Program
2. NCHD School Health Program
3. Jerry Newton, Richard Adams The New School Health Handbook: A Ready Reference for School Nurses and Educators, 3rd Edition
4. Social Action Programme, Pakistan 1990
5. National Health Survey, Pakistan 1989
6. WHO (1990) Towards a better future, MCH, Geneva

5.9 Health Information System

Learning Outcomes:

After studying this course, you should be able to:

- To familiarize the students with the basic concepts of health MIS
- To expose the students to the health information data collection, analysis and interpretation techniques
- To provide the stakeholders basic vital/health information for decision making

Course Contents:

1. Introduction to Health MIS
2. Contribution of Information technology
 - The strategy network in Health Care organizations
 - Information strategy related to Enterprise and organizational strategies
3. Organizational Accountability
 - Integration of clinical strategy with business strategy
 - Information strategy ; Clinical Decision support system
 - Aligning information strategy with clinical strategy
4. Information Strategy empowers organizational strategy, Managing data, Information and Knowledge
5. Information strategy ; Managing information resources
6. Investing in Information technology
7. Managing Information technology services
8. Information Security and ethics
9. Building Health care Information infrastructure

Recommended Readings:

1. Gordon. D Brown, Tamara T. Stone, Timothy B Patrick - Strategic management of Information systems in Health care (BK-1)
2. www.who.hmis

5.10 Health Project Management

Learning Outcomes:

After studying this course, you should be able to:

- Understand project management concepts / techniques and how they improve the success of information technology projects.
- Demonstrate knowledge of project management terms and techniques, such as:
 - The project management knowledge areas and process groups
 - The triple constraint of project management applied to a healthcare environment
 - The project life cycle
 - Tools and techniques of project management, such as:
 - Project selection methods
 - Work breakdown structures
 - Cost estimates
 - Earned value management
 - Motivation theory and team building
- Be familiar with Project Management tools / techniques and be able to help plan and manage a project.

Course Content:

1. Introduction to Project Formulation
2. Preparing for project formulation
3. Analyzing the organizational situation
4. Analyzing the Health, Socioeconomic and Demographic situation
5. Analyzing and projecting the problems
6. Setting the objectives and targets
7. Identifying potential obstacles
8. Designing the strategies
9. Planning the project
10. Writing the project proposal
11. Initiating the project implementation
12. Specifying and scheduling the work
13. Clarifying authorities, responsibilities, and relationships
14. Obtaining recourses
15. Directing and controlling
16. Terminating the project

Recommended Reading:

1. WHO Health Project Management a manual of procedures for formulating and implementing health projects by J. Bainbridge
2. Martin Van Der Schouw Practical Project Management
3. David Shirley Project Management for Health Care

5.11 Art and Public Health

Learning Outcomes:

After studying this course, you should be able to:

- Develop an understanding of the theoretical foundations that inform the field of arts in medicine and practice of the arts in community health programs
- Understand the roles of the arts in promoting health education, health literacy and disease prevention in community settings

- Develop understanding of the knowledge and skills necessary to engage the arts in a health context
- Develop professional-level practical skills in using the arts to address health in both healthcare and community settings
- Achieve an advanced level of understanding of arts in public health practice
- Gain experience in and develop understanding of the administrative structures that support arts in public health programs and initiatives
- Understand core issues, contemporary trends, critical debates, and research central to the arts in public health
- Identify core competencies including ethical frameworks, program development and assessment, grant writing, and cultural competency

Course Contents:

1. International coverage of creative arts demonstrates their role in very contrasting societies around the world
2. Illustrates how implementing creative arts practices in the promotion of health and wellbeing is compatible with evidence-based practices
3. Introduces the role of the arts across the whole life-span, from birth to the end of life
4. Demonstrates the value of the arts in different social settings communities, schools, hospitals, prisons
5. Offers detailed case studies of creative arts practice in promoting wellbeing and health
6. Use of Music and Films to teach health

Recommended Readings:

1. Stephen Clift, Paul M. Camic Oxford Textbook of Creative arts, Health & Well being.
2. Raymond MacDonald & Gunter Kreutz Music Health & Well being.

5.12 Community Dentistry

Learning Outcomes:

After studying this course, you should be able to:

- Fundamental knowledge of the philosophy, principles, and practices of Dental Public Health.
- Specialized knowledge and skills for practicing Dental Public Health, including research, administration, and teaching

Course Contents:

1. Plan oral health programs for populations.
2. Select interventions and strategies for the prevention and control of oral diseases and promotion of oral health.
3. Develop resources, implement, and manage oral health programs for populations.
4. Incorporate ethical standards in oral health programs and activities.
5. Evaluate and monitor dental care delivery systems.
6. Design and understand the use of surveillance systems to monitor oral health.
7. Communicate and collaborate with groups and individuals on oral health issues.
8. Advocate for, implement, and evaluate public health policy, legislation, and regulations to protect and promote the public's oral health.
9. Critique and synthesize scientific literature.
10. Design and conduct population-based studies to answer oral and public health questions.

Recommended Readings:

1. Geoffrey L. Slack, Brian A. Burt Dental Public Health: Introduction to Community Dentistry
2. Robert Ireland Textbook of Clinical Hygiene & Therapy
3. Health Council of Netherland Perspectives on oral health care
4. N. Michigan Ave American Dental Hygiene Association Dental Hygiene Education.

5.13 Community Psychiatry**Learning Outcomes:**

After studying this course, you should be able to:

- Genetic factors and Physical constitution of prevention psychiatry
- Understand psychosotic and somatopsychic interaction
- Organic states
- Effective disorder and Management of psychiatric disorder in Pakistan

Course Contents:

1. Organizations of community mental health
2. Severe mental disorder
3. Etiology mental illness
4. Classification of psychiatric disorder
5. The magnitude of mental illness in Pakistan
6. Common community mental health problems in Pakistan
7. Community psychiatric health problem in the light of WHO report 2001
8. Prevention of mental illness
9. Operation of community psychiatry
10. Community psychiatry Team

Recommended Reading:

1. Hunter L. McQuishon & Others Handbook of Community Psychiatry
2. Anderson E.W. Psychiatry Tindall & Cox Ltd. London
3. Gelder. Gath & Mayou Oxford Textbook of Psychiatry

5.14 Community Nursing**Learning Outcomes:**

After studying this course, you should be able to:

- Understand and differentiate between community and clinical nursing
- Current nursing trends
- Leadership and communication
- Legal practices in nursing in community nursing care
- Role of Community Health Nursing in district health setup

Course Contents:

- 1 Concepts of Community Health Nursing.
- 2 Rules and functions of Community Health Nursing.

- 3 Family Health Nursing.
- 4 Three ways Florence Nightingale influenced the department of nursing history, contribution of early civilization to care of sick
- 5 Discipline of nursing, what is nursing, definition of nurses functions, major nursing theories
- 6 Nursing trends and issues, 100 year debate. accelerating change, nursing education, responding to an inevitable future
- 7 Leadership for an era of change, nursing autonomy, a leader among leaders, perspective of power
- 8 Ethical issues in nursing and health care / what creates ethical dilemmas. factors that influence ethical decision making theories, codes of ethics
- 9 Legal aspects of nursing practice. Litigation trends in health care. application of legal principles
- 10 Management of nursing services. the evolving practice of nurse executives
- 11 Organization of nursing patient care. The nursing department division. Patient care department division.
- 12 Changing health care, delivery methods, services line models. patient focused care, emerging models for nursing care delivery.

Recommended Readings:

1. Marjorie Beyers The Management of Nursing Services D-18
2. L.Y. Kelly & L.A. Joel The Nursing Experience D-8
3. B.T. Basavanthappa - Community Health Nursing.D-10

5.15 Food Safety

Learning Outcomes:

After studying this course, you should be able to:

- Manage systems for good personal hygiene;
- Control food allergens and food hazards within the business;
- Maintain an effective incident management system;
- Explain the characteristics of poorly constructed water wells;
- Design and operate a system to minimize the risk of pest-infestation in both product and facility;
- Follow safe practices in food preparation areas to avoid accidents;
- Understand the role and influence of the manager on the food safety operation team.

Course Contents:

1. Sanitation & Food Industry
2. The relation of micro organism
3. The relation of Allergen to sanitation
4. The relation of food contamination
5. Personal hygiene & sanitary food handling
6. Role of cleaning compounds in food safety

7. Sanitizers
8. Dairy process plant sanitation
9. Fruit & vegetable sanitation
10. Beverage plant sanitation
11. Butcher sanitation
12. Street food hawkers sanitation\
13. Time & Temperature control
14. Personal hygiene in food professionals
15. Cross contamination prevention
16. Toxic chemicals & Pest control

Recommended Readings:

1. Manual of Food Safety USDA, FSIS Corporate Agreement
Restaurant X - Food Safety Training Manual
2. WHO Nutrition and Food Safety in Pakistan

5.16 Health Marketing

Learning Outcomes:

After studying this course, you should be able to:

- Understand the basic marketing principles
- 04 Ps of marketing
- Advertisement and promotion
- Ethics in marketing
- To understand and describe the principles of marketing and their application in health and health care
- To understand the strategic role of marketing in organizations Strategic
- To apply marketing approaches, tools and techniques in analyzing and solving marketing issues
- To understand the differences and similarities of marketing approaches and tools and their application in private and public health settings, including the use of social marketing
- Explore and analyze current and future marketing issues and trends related to health and health care
- Develop a marketing plan for an organization
- To effectively communicate marketing related concepts and strategy
- Have an understanding of marketing and the marketing planning process.
- Have an understanding of the essential components of marketing strategy formulation in the healthcare environment.
- Have an overall understanding of the effect that marketing has on a health care organization's long-term success.
- Understand the internal and external factors that influence consumer decision making related to healthcare.
- Familiarize students with Marketing of Healthcare services in the Kingdom.
- Understand and Develop marketing strategies aimed at satisfying customer demands and preferences in a health care environment.

Course Contents:

1. Basic understanding of marketing
2. Social, societal and health marketing
3. The History of Marketing in Healthcare
4. Health care administration and marketing
5. Strategic marketing
6. Sale promotion and advertisement
7. Budgeting and financing
8. Marketing and the Healthcare Organization
9. Healthcare Products and Services
10. Emerging Marketing Techniques
11. Marketing Research in Healthcare

Recommended Reading:

1. Philip Kotler Marketing Management Pearson Education/PHI, 2003.
2. Kotler & Keller Service Marketing Management
3. Richard K. Thomas. (2010). Marketing Health Services: Second Edition. Foundation of the American College of Healthcare Executives.
4. John L. Fortenberry Jr. (2010). Heath Care Marketing: Tools and Techniques, Third Edition. Jones and Bartlett.
5. Croufer & Simon (2009). Putting Patients At The Center of A New Business Model. Prism.

5.17 Addiction and Social Rehabilitation

Learning Outcomes:

After studying this course, you should be able to:

- Understand the basic concepts of Addiction and social rehabilitation in practice
- Community diagnoses for addiction
- Substances of abuse
- Pattern of drug uses
- ICD 10 Criteria
- Social psychology of Addiction
- Demand for Addiction Treatment
- Care Planning and Management
- Treatment of Opiate Addiction
- Treatment of Non-Opiate Addiction
- Addiction Treatment in the Criminal Justice System
- Social Support and Reintegration
- Co-ordination and Monitoring of Strategy
- Rehabilitation practices and harm reduction

Course Contents:

1. Introduction to Counseling and Rehabilitation
2. Ethical and Legal Aspects of Substance Abuse and Rehabilitation Counseling
3. Psychiatric Rehabilitation
4. Counseling Theories in Addiction and Rehabilitation
5. Counseling Theories in Addiction and Rehabilitation
6. Prepracticum in Substance Abuse and Clinical Counseling
7. Substance Abuse Counseling

8. Human Growth and Development in Addictions and Rehabilitation Counseling
9. Rehabilitation Evaluation (i.e. Assessment)
10. Treatment of Drug and Behavioral Addictions

Recommended Reading:

1. Neil T. Anderson Overcoming Addiction Behavior
2. Anne M. Fletcher Inside Rehab

5.18 Nuclear Medicine

Learning Outcomes:

After studying this course, you should be able to:

- Understand the basic knowledge of nuclear radiation
- Source of nuclear radiation
- Hazards to exposure
- Positive role in medical and other industries

Course Contents:

1. Introduction to nuclear medicine
2. Exposures to nuclear material
3. Origin & nature of Radiation
4. Terrestrial Radiation
5. Man made source of Radiation
6. Problems of nuclear radiation
7. Biological effects of radiation
8. Radiation effects
9. Evolution of permissible doses
10. Protection from radiation
11. Use in medical diagnostic and therapeutics
12. Radioactive waste disposal
13. Safety & regulatory control

Recommended Reading:

1. ICRP Publication 8. The evaluation of Risks from Radiation
2. Knoll Nuclear Radiation Detection
3. United States Atomic Energy Commission, Medical Aspects of Radiation Accidents, 1963
4. Donald R. Bernier Nuclear Medicine Published by Mosby
5. M. Ilyas Public Health and Community medicine

5.19 Sports Medicine

Learning Outcomes:

After studying this course, you should be able to:

Understand basic concepts of sports medicine;

- Medical supervision and care of athlete
- Physical education (Special and adapted)
- Exercise for prevention of chronic degenerative disease

- Therapeutic exercise in the treatment of physical disorder of disease
- Understand the basic structure of muscles, nerves and bones and its prevention during sports activities
- Basic exercises to strengthen the muscles
- Understand the relationship between brain and body

Course Contents:

1. The history of Sports medicine
2. Physiology of Physical Fitness
3. Nutrition of the Athlete
4. Special care of the Athlete
5. Special consideration of female athlete
6. Role of sports physician in the practice of sports medicine
7. Rehabilitation
8. Ergogenic AIDS/DOPING

Recommended Reading:

1. Ryan AJ, Allman Jr FD Sports Medicine Academic Press New York
2. Davis EC, Logan GA Biophysical values of muscular activity
3. McDonald R, Keen CL-Iron, Zinc and Magnesium and Athletic performance Sports Medicine 1988

5.20 Adolescent and Sexual Health

Learning Outcomes:

After studying this course, you should be able to:

- Define and discuss community health, determinants of sexual health, and health advocacy.
- Identify socio-cultural and political barriers, as well as individual barriers, to health, with a focus on sexual health, and strategies to confront those barriers.
- Demonstrate critical thinking skills related to community and sexual health.
- Demonstrate skills of intervention to provide other students with information, options, and resources regarding community and sexual health.

Course Contents:

1. Welcome, introductions, course overview, ground rules, expectations
2. Empowerment, oppression, privilege, social justice
3. Anatomy & Physiology Sexual Response Cycle Menstrual Cycle, Conception, Contraception
4. Sexually Transmitted Infections
5. HIV/AIDS
6. Sexual Assault
7. Gender, Sexual Orientation, Heterosexism & Homophobia
8. Technology & Sexuality
9. Relationships & Communication
10. Body Image, Media & Sexuality

Recommended Reading:

1. Josefina J. Card & Tabitha Benner Adolescent Sexual Health Education An Activity Source Book

2. Andrew L. Cherry International Handbook on Adolescent Health and Development the public health program

5.21 Risk Management

Learning Outcomes:

After studying this course, you should be able to:

- Describe general principles and concepts of enterprise risk management
- Explain basic legal concepts associated with health care risk management
- Describe key structural elements of a risk management program
- List the steps in the risk management process
- Explain risk exposures related to documentation and the medical record
- Describe the concept of risk financing, insurance and claims administration
- Explain risk exposures associated with occupational health, safety and the environment
- Analyze a comprehensive risk management and patient safety program

Course Contents:

1. Risk management understanding and assessments
2. Types of Risks
3. OT risk management
4. Clinical laboratory and radiation risk management
5. Hospital waste risks
6. Development of a Risk Management Program
7. The Process of Professional Regulation
8. Identification of Organizational Risks and Ethics
9. Risk Financing Insurance

Recommended Readings:

1. Risk Management Handbook for Health Care Organizations: Student Edition, Roberta Carroll (Editor). American Society for Healthcare Risk Management. Published by Josey-Bass, 2009

Additional resources will be assigned via University's internet learning platform (Sakai)

5.22 Geriatrics

Learning Outcomes:

After studying this course, you should be able to:

- Understand the concept of geriatric studies
- Aging and theories
- Basic concepts of geriatric ailments
- Management practices of geriatric disorder

Course Contents:

1. Introduction to geriatrics Gerontologic Assessment
 - Mechanisms of Ageing
 - Doctor Patient relationship

- History Taking and physical examination
2. Theories of aging Physiology of aging; myths surrounding aging; age-related changes in cardiovascular system, respiratory system, urinary system, gastrointestinal system
 3. Healthy Ageing Health Promotion and ageing
 4. Psychiatric and Behavioural Issues Common psychiatric Disorders
 5. Neurological Conditions
 - Falls
 - Neurodegenerative conditions
 - Dementia
 - Alzheimer's
 - Confusional States
 6. Special Issues
 - Medical Conditions Chronic diseases
 - Systems approach (endocrine, reproductive, immune systems)
 - ENT and Eye Conditions
 7. Nutritional Needs
 8. Ethical issues
 9. Rehabilitation of elderly patient Palliative Care

Recommended Readings

1. Ranjit N Ratnaik Practical guide to geriatric Medicine (BK 1)
2. Gerontology Care Compiled Notes (BK 2)
3. OP Sharma Geriatric Care; Viva Books Private Limited (BK 3)
4. CS Kart The Realities of Aging: An introduction to Gerontology; publisher Allyn and Bacon, Inc. Boston, MA. 2nd edition (BK 4)
5. Florence, Lieberman, Morris F Collen Aging in Good Health A quality Lifestyle for the Later Years Insight Books
6. Steve Iliffe Linda Patterson, Mairi M Gould Health Care for Older People Mgt in MGP General Practice - BMJ

COMPULSORY COURSES

ANNEXURE – A: English I (Functional English)

Objectives: Enhance language skills and develop critical thinking.

Course Contents:

Basics of Grammar
Parts of speech and use of articles
Sentence structure, active and passive voice
Practice in unified sentence
Analysis of phrase, clause and sentence structure
Transitive and intransitive verbs
Punctuation and spelling

Comprehension:

Answers to questions on a given text

Discussion:

General topics and every-day conversation (topics for discussion to be at the discretion of the teacher keeping in view the level of students)

Listening:

To be improved by showing documentaries/films carefully selected by subject teachers

Translation skills:

Urdu to English

Paragraph writing:

Topics to be chosen at the discretion of the teacher

Presentation skills:

Introduction

Note: Extensive reading is required for vocabulary building

Recommended Books:

1. **Functional English**
 - a) Grammar
 1. Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 1. Third edition. Oxford University Press. 1997. ISBN 0194313492
 2. Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press. 1997. ISBN 0194313506

- b) Writing
 - 1. Writing. Intermediate by Marie-Christine Boutin, Suzanne Brinand and Françoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 20-27 and 35-41.
- c) Reading/Comprehension
 - 1. Reading. Upper Intermediate. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 453402 2.
- d) Speaking

ANNEXURE – B: English II (Communication Skills)

Objectives: Enable the students to meet their real life communication needs.

Course Contents:

Paragraph writing

Practice in writing a good, unified and coherent paragraph

Essay writing

Introduction

CV and job application

Translation skills

Urdu to English

Study skills

Skimming and scanning, intensive and extensive, and speed reading, summary and précis writing and comprehension

Academic skills

Letter/memo writing, minutes of meetings, use of library and internet

Presentation skills

Personality development (emphasis on content, style and pronunciation)

Note: documentaries to be shown for discussion and review

Recommended Books:

Communication Skills

- a) Grammar
 1. Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press 1986. ISBN 0 19 431350 6.
- b) Writing
 1. Writing. Intermediate by Marie-Christine Boutin, Suzanne Brinand and Françoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 45-53 (note taking).
 2. Writing.Upper-Intermediate by Rob Nolasco. Oxford Supplementary Skills. Fourth Impression 1992. ISBN 0 19 435406 5 (particularly good for writing memos, introduction to presentations, descriptive and argumentative writing).
- c) Reading
 1. Reading. Advanced. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1991. ISBN 0 19 453403 0.
 2. Reading and Study Skills by John Langan
 3. Study Skills by Richard York.

ANNEXURE – C: English III (Technical Writing and Presentation Skills)

Objectives: Enhance language skills and develop critical thinking

Course Contents:

Presentation skills

Essay writing

Descriptive, narrative, discursive, argumentative

Academic writing

How to write a proposal for research paper/term paper

How to write a research paper/term paper (emphasis on style, content, language, form, clarity, consistency)

Technical Report writing

Progress report writing

Note: Extensive reading is required for vocabulary building

Recommended Books:

Technical Writing and Presentation Skills

- a) Essay Writing and Academic Writing
 1. Writing. Advanced by Ron White. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 435407 3 (particularly suitable for discursive, descriptive, argumentative and report writing).
 2. College Writing Skills by John Langan. McGraw-Hill Higher Education. 2004.
 3. Patterns of College Writing (4th edition) by Laurie G. Kirszner and Stephen R. Mandell. St. Martin's Press.
- b) Presentation Skills
- c) Reading
The Mercury Reader. A Custom Publication. Compiled by Northern Illinois University. General Editors: Janice Neulib; Kathleen Shine Cain; Stephen Ruffus and Maurice Scharon. (A reader which will give students exposure to the best of twentieth century literature, without taxing the taste of engineering students).

ANNEXURE – D: Pakistan Studies (Compulsory)

Introduction/Objectives:

- Develop vision of historical perspective, government, politics, contemporary Pakistan, ideological background of Pakistan.
- Study the process of governance, national development, issues arising in the modern age and posing challenges to Pakistan.

Course Outline:

1. Historical Perspective

- a. Ideological rationale with special reference to Sir Syed Ahmed Khan, Allama Muhammad Iqbal and Quaid-e-Azam Muhammad Ali Jinnah.
- b. Factors leading to Muslim separatism
- c. People and Land
 - i. Indus Civilization
 - ii. Muslim advent
 - iii. Location and geo-physical features.

2. Government and Politics in Pakistan

Political and constitutional phases:

- a. 1947-58
- b. 1958-71
- c. 1971-77
- d. 1977-88
- e. 1988-99
- f. 1999 onward

3. Contemporary Pakistan

- a. Economic institutions and issues
- b. Society and social structure
- c. Ethnicity
- d. Foreign policy of Pakistan and challenges
- e. Futuristic outlook of Pakistan

Recommended Books:

1. Burki, Shahid Javed. *State & Society in Pakistan*, The MacMillan Press Ltd 1980.
2. Akbar, S. Zaidi. *Issue in Pakistan's Economy*. Karachi: Oxford University Press, 2000.
3. S.M. Burke and Lawrence Ziring. *Pakistan's Foreign policy: An Historical analysis*. Karachi: Oxford University Press, 1993.
4. Mehmood, Safdar. *Pakistan Political Roots & Development*. Lahore, 1994.
5. Wilcox, Wayne. *The Emergence of Bangladesh*, Washington: American Enterprise, Institute of Public Policy Research, 1972.
6. Mehmood, Safdar. *Pakistan Kayyun Toota*, Lahore: Idara-e-Saqafat-e-Islamia, Club Road, nd.
7. Amin, Tahir. *Ethno -National Movement in Pakistan*, Islamabad: Institute of Policy Studies, Islamabad.
8. Ziring, Lawrence. *Enigma of Political Development*. Kent England: Wm Dawson & sons Ltd, 1980.
9. Zahid, Ansar. *History & Culture of Sindh*. Karachi: Royal Book Company, 1980.
10. Afzal, M. Rafique. *Political Parties in Pakistan*, Vol. I, II & III. Islamabad: National Institute of Historical and cultural Research, 1998.

11. Sayeed, Khalid Bin. *The Political System of Pakistan*. Boston: Houghton Mifflin, 1967.
12. Aziz, K.K. *Party, Politics in Pakistan*, Islamabad: National Commission on Historical and Cultural Research, 1976.
13. Muhammad Waseem, *Pakistan Under Martial Law*, Lahore: Vanguard, 1987.
14. Haq, Noor ul. *Making of Pakistan: The Military Perspective*. Islamabad: National Commission on Historical and Cultural Research, 1993.

ANNEXURE – E: ISLAMIC STUDIES (Compulsory)

Objectives:

This course is aimed at:

- 1 To provide Basic information about Islamic Studies
- 2 To enhance understanding of the students regarding Islamic Civilization
- 3 To improve Students skill to perform prayers and other worships
- 4 To enhance the skill of the students for understanding of issues related to faith and religious life.

Detail of Courses:

Introduction to Quranic Studies

- 1) Basic Concepts of Quran
- 2) History of Quran
- 3) Uloom-ul-Quran

Study of Selected Text of Holly Quran

- 1) Verses of Surah Al-Baqara Related to Faith (Verse No-284-286)
- 2) Verses of Surah Al-Hujrat Related to Adab Al-Nabi (Verse No-1-18)
- 3) Verses of Surah Al-Mumanoon Related to Characteristics of faithful (Verse No-1-11)
- 4) Verses of Surah al-Furqan Related to Social Ethics (Verse No.63-77)
- 5) Verses of Surah Al-Inam Related to Ihkam (Verse No-152-154)

Study of Selected Text of Holly Quran

- 1) Verses of Surah Al-Ihzab Related to Adab al-Nabi (Verse No.6,21,40,56,57,58.)
- 2) Verses of Surah Al-Hashar (18,19,20) Related to thinking, Day of Judgment
- 3) Verses of Surah Al-Saf Related to Tafakar, Tadabar (Verse No-1,14)

Seerat of Holy Prophet (S.A.W) I

- 1) Life of Muhammad Bin Abdullah (Before Prophet Hood)
- 2) Life of Holy Prophet (S.A.W) in Makkah
- 3) Important Lessons Derived from the life of Holy Prophet in Makkah

Seerat of Holy Prophet (S.A.W) II

- 1) Life of Holy Prophet (S.A.W) in Madina
- 2) Important Events of Life Holy Prophet in Madina
- 3) Important Lessons Derived from the life of Holy Prophet in Madina

Introduction to Sunnah

- 1) Basic Concepts of Hadith
- 2) History of Hadith
- 3) Kinds of Hadith
- 4) Uloom –ul-Hadith
- 5) Sunnah & Hadith

- 6) Legal Position of Sunnah

Selected Study from Text of Hadith

Introduction to Islamic Law & Jurisprudence

- 1) Basic Concepts of Islamic Law & Jurisprudence
- 2) History & Importance of Islamic Law & Jurisprudence
- 3) Sources of Islamic Law & Jurisprudence
- 4) Nature of Differences in Islamic Law
- 5) Islam and Sectarianism

Islamic Culture & Civilization

- 1) Basic Concepts of Islamic Culture & Civilization
- 2) Historical Development of Islamic Culture & Civilization
- 3) Characteristics of Islamic Culture & Civilization
- 4) Islamic Culture & Civilization and Contemporary Issues

Islam & Science

- 1) Basic Concepts of Islam & Science
- 2) Contributions of Muslims in the Development of Science
- 3) Quran & Science

Islamic Economic System

- 1) Basic Concepts of Islamic Economic System
- 2) Means of Distribution of wealth in Islamic Economics
- 3) Islamic Concept of Riba
- 4) Islamic Ways of Trade & Commerce

Political System of Islam

- 1) Basic Concepts of Islamic Political System
- 2) Islamic Concept of Sovereignty
- 3) Basic Institutions of Govt. in Islam

Islamic History

- 1) Period of Khlaft-E-Rashida
- 2) Period of Ummayyads
- 3) Period of Abbasids

Social System of Islam

- 1) Basic Concepts of Social System of Islam
- 2) Elements of Family
- 3) Ethical Values of Islam

Reference Books:

- 1) Hameed ullah Muhammad, "Emergence of Islam", IRI, Islamabad
- 2) Hameed ullah Muhammad, "Muslim Conduct of State"
- 3) Hameed ullah Muhammad, "Introduction to Islam"
- 4) Mulana Muhammad YousafIslahi,"
- 5) Hussain Hamid Hassan, "An Introduction to the Study of Islamic Law" leaf Publication Islamabad, Pakistan.
- 6) Ahmad Hasan, "Principles of Islamic Jurisprudence" Islamic Research

- Institute, International Islamic University, Islamabad (1993)
- 7) Mir Waliullah, “Muslim Jurisprudence and the Quranic Law of Crimes” Islamic Book Service (1982)
 - 8) H.S. Bhatia, “Studies in Islamic Law, Religion and Society” Deep & Deep Publications New Delhi (1989)
 - 9) Dr. Muhammad Zia-ul-Haq, “Introduction to Al Sharia Al Islamia”Allama Iqbal Open University, Islamabad (2001)

ANNEXURE – F: MATHEMATICS I (ALGEBRA)
(FOR STUDENTS NOT MAJORING IN MATHEMATICS)

Prerequisite(s): Mathematics at secondary level

Credit Hours: 3 + 0

Specific Objectives of the Course: To prepare the students, not majoring in mathematics, with the essential tools of algebra to apply the concepts and the techniques in their respective disciplines.

Course Outline:

Preliminaries: Real-number system, complex numbers, introduction to sets, set operations, functions, types of functions. *Matrices:* Introduction to matrices, types, matrix inverse, determinants, system of linear equations, Cramer's rule.

Quadratic Equations: Solution of quadratic equations, qualitative analysis of roots of a quadratic equations, equations reducible to quadratic equations, cube roots of unity, relation between roots and coefficients of quadratic equations.

Sequences and Series: Arithmetic progression, geometric progression, harmonic progression. *Binomial Theorem:* Introduction to mathematical induction, binomial theorem with rational and irrational indices. *Trigonometry:* Fundamentals of trigonometry, trigonometric identities.

Recommended Books:

1. Dolciani MP, Wooton W, Beckenback EF, Sharron S, *Algebra 2 and Trigonometry*, 1978, Houghton & Mifflin, Boston (suggested text)
2. Kaufmann JE, *College Algebra and Trigonometry*, 1987, PWS-Kent Company, Boston
3. Swokowski EW, *Fundamentals of Algebra and Trigonometry* (6th edition), 1986, PWS-Kent Company, Boston

ANNEXURE – G: Bio-Statistics-I Credit 3 (2-1)

Definition and importance of Statistics in Agriculture, Data Different types of data and variables

Classification and Tabulation of data, Frequency distribution, stem-and-Leaf diagram, Graphical representation of data Histogram, frequency polygon, frequency curve.

Measure of Central tendency, Definition and calculation of Arithmetic mean, Geometric mean, Harmonic mean, Median quantiles and Mode in grouped and un-grouped data.

Measure of Dispersion, Definition and Calculation of Range, quartile deviation, Mean deviation, Standard deviation and variance, coefficient of variation.

Practical:

- a. Frequency Distribution
- b. Stem-and-Leaf diagram
- c. Various types of Graphs
- d. Mean, Geometric mean Harmonic Mean,
- e. Median, Quartiles Deviation, mean Deviation.
- f. Standard Deviation, Variance, Coefficient of variation,
- g. Skewness and kenosis

Recommended Books:

1. Introduction to Statistical Theory Part- I by Sher Muhammad and Dr. Shahid Kamal (Latest Edition)
2. Statistical Methods and Data Analysis by Dr. Faquir Muhammad
3. A. Concise Course in A. Level Statistic with world examples by J. Crashaw and J. Chambers (1994)
4. Basic Statistics an Inferential Approach 2nd Ed. (1986) Fran II. Dietrich-II and Thomas J. Keans

ANNEXURE – H: Introduction to Information and Communication Technologies

Course Structure: Lectures: 2 Labs: 1 **Credit Hours: 3**
Pre-requisite: None **Semester: 1**

Course Description:

This is an introductory course on Information and Communication Technologies. Topics include ICT terminologies, hardware and software components, the internet and World Wide Web, and ICT based applications.

After completing this course, a student will be able to:

- Understand different terms associated with ICT
- Identify various components of a computer system
- Identify the various categories of software and their usage
- Define the basic terms associated with communications and networking
- Understand different terms associated with the Internet and World Wide Web.
- Use various web tools including Web Browsers, E-mail clients and search utilities.
- Use text processing, spreadsheets and presentation tools
- Understand the enabling/pervasive features of ICT

Course Contents:

Basic Definitions & Concepts

Hardware: Computer Systems & Components

Storage Devices, Number Systems

Software: Operating Systems, Programming and Application Software

Introduction to Programming, Databases and Information Systems

Networks

Data Communication

The Internet, Browsers and Search Engines

The Internet: Email, Collaborative Computing and Social Networking

The Internet: E-Commerce

IT Security and other issues

Project Week

Review Week

Text Books/Reference Books:

1. Introduction to Computers by Peter Norton, 6th International Edition, McGraw-Hill
2. Using Information Technology: A Practical Introduction to Computer & Communications by Williams Sawyer, 6th Edition, McGraw-Hill
3. Computers, Communications & information: A user's introduction by Sarah E. Hutchinson, Stacey C. Swayer
4. Fundamentals of Information Technology by Alexis Leon, Mathews Leon, Leon Press.