



TEHRAN UNIVERSITY  
OF  
MEDICAL SCIENCES

## **School of Public Health**



### **Master of Public Health (MPH) Certificate**

#### **Program Manual**

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## **Introduction**

In the season consumed with numerous public health issues, Tehran University of Medical Sciences (TUMS)-School of Public Health (SPH) Launches Master of Public Health (MPH) program to tackle various health Issues. It aims to introduce the fundamental concepts of public health, at international level, to ensure access to high-quality education in public health and demonstrate how to create a healthier, better world.

Spending this period with TUMS- SPH to obtain the MPH goes beyond a mere earning of a degree. The program will provide participants with a lifelong and memorable experience through participating in many exciting activities and living the real life of public health in the field.

## Why Study MPH at TUMS -SPH?

SPH has managed to maintain a strong and steady flow of partnerships and collaborations with several international organizations, i.e. World Health Organization, Red Crescent, UNICEF, ECO, among others. This school enjoys the presence of pioneer, high-ranking, and internationally renowned faculty members to teach, supervise, and contribute to the various subjects in both the academic environment as well as the practical field.



The MPH program is the standard professional Public Health Program recognized throughout the world. It is designed to provide an incredible opportunity for students to learn up-to-date and fundamental skills in the core areas of public health. The program is tailored to meet the needs of individuals working in or planning to work in the public health profession and serves to those seeking a broader sense of knowledge to improve health services for the community.



The reports by the Alumni Office at TUMS-SPH have highlighted the extent to which our previous MPH participants from across the globe have enriched their competency in global public health. Our graduates have taken various pathways, from working in national and international organizations to getting job promotions, or continuing their studies towards a Ph.D. and other postgraduate degrees in prestigious higher education institutes. Wherever their destiny has led them, they invariably express how life changing the MPH program has been in the beautiful and hospitable Iran.

### **Program overview**

The key characteristics of MPH program is to enhance participants' robust knowledge and competency in a wide range of practical skills. The entire program is run in a blended learning environment, with a fair combination of academic learning plus promotion of pragmatic skills. The MPH at SPH is a one and half year program including 34-credits (28 courses, 2 credits internship and 4 credits dissertation). Course are presented at two first semesters, each includes four months, plus one month summer in-person internship plus dissertation; which could be started from the early second semester and might last until the third or fourth one. It will be conducted on a full-time basis and starting date of program would be twice in a year; February and October.

### **Program Objectives**

The overarching goal of the MPH Program is to provide students with a population perspective on health. The MPH Program is designed to:

- Prepare students to tackle with current and emerging global public health problems
- Provide students with critical multidisciplinary training to help solve global health problems
- Equip students with foundational public health knowledge and competencies.

## **Admission Requirements (Eligibility Criteria)**

All applicants for the MPH program must have the following criteria:

1. Graduates of professional doctoral programs, i.e. Medicine, Dentistry, Veterinary Medicine, or Pharmacy; or
2. Graduates of Bachelor or Master's or equivalent degrees of health related programs;
3. Fluency in English (having previous degree from a English spoken university, OR submit minimum ILETS score of 6.0 or equivalent TOEFL Score)
4. Admitted by SPH and confirmed by the TUMS admission Committee,

**Besides, the following criteria are preferred:**

1. Work experience in the field of Public Health
2. Submit Reference Letters from academic members or senior public health officials.

## **Admission Procedures**

Selections for the MPH program will be made by TUMS Admissions Committee. They will review applications and select the most competent applicants. The acceptance letters will be sent to successful applicants by TUMS.

## **How to apply**

The applicants should complete the Online Application Form, accompanied by a Letter of Motivation and an updated C.V. and make application at least two months before starting dates of the program. Guidelines on how to write your Letter of Motivation and your C.V. can be found on [www.gsia.tums.ac.ir](http://www.gsia.tums.ac.ir).

This program has a maximum capacity of 30 available seats, with the optimum number of 25-30 participants in each academic year.

## Mode of study

According to the regulations, as to the mode of study, this program is run at the following three modes:

1. **On-campus:** students must be present at TUMS for the whole period of the program.
2. **Off-campus:** All courses will be online, except for the final exam, which will be held on-campus either in TUMS, Iran, or TUMS Sebtein campus, Iraq. **At this mode, in the degree issued, the term 'virtual' will be mentioned.**
3. **Mixed:** up to 40 percent of some courses could be presented online (for more details contact with the school).

The program at all abovementioned modes will start with a cohort of at least three participants. In case the number is less, the admission will be postponed to the next semester.

## Language

This program will be conducted entirely in English. Participants are expected to be fluent in spoken and written English. Applicants must provide documentary evidence of their proof of English. International applicants for whom English is not the native language are required to submit minimum IELTS score of 6.0 or equivalent TOEFL Score.

## Tuition Fees

Tuition and Education Fees at Tehran University of Medical Sciences are based on type of level and program. For complete information regarding expenses, please visit Education Fees and Yearly Expenses. (<http://en.tums.ac.ir/en/page/10/fee-structure>)

**Normal period for MPH program is one and half year. Currently tuition fee is 1500 US dollar per semester.**

## **Graduation Requirements (Academic Standards)**

1. Passing all 34 credits are required for graduation. Students must complete the MPH modules provided in the curriculum.
2. A number of 14 credits are offered per semester and internship is planned for summer time.
3. All students must take part in one month in-person internship and fulfill its assignments.
4. All students must maintain minimum academic standards and have satisfactory grades as detailed in the course curriculum i.e. in each module, minimum of 14 out of 20 grade should be acquired by the student.
5. The average grade of courses should not be less than 15 out of 20 (GPA) in the Iranian scoring system.
6. Selection of dissertation supervisors could be done since the early second semester, and the dissertation proposal must be submitted before ending the third one.
7. Students should obtain the Ethical approval from TUMS, after submission of dissertation proposal and before starting their dissertation.
8. Duration between proposal approval and defense could not be less than 4 months.

## **More to know...**

Participants in the MPH program are:

- Responsible for the accuracy and correctness of the information provided in the application forms.
- Committed to complete the program successfully.
- Obligated to observe rules, regulations, code of conduct and conditions of the host country and TUMS.

## MPH modules

**MPH program Courses:** Courses will be offered based on the following table:

Module Title	N of credits	Type	Blocks
Applied Biostatistics	2	Core	<b>Compulsory courses (18 Credits)</b>
Health Services Planning and Management	2	Core	
Quantitate and Qualitative Research Methods in Health	2	Core	
Health Economics	2	Core	
Environmental Health	2	Core	
Principles of Epidemiology	2	Core	
Health systems	2	Core	
Health Promotion & Education	1	Core	
Occupational health	1	Core	
Computer Applications in Public Health (information systems)	1	Core	
Social Determinants of Health (SDH) and Health Inequality	1	Core	
Management of Communicable and Non-communicable Diseases	2	Elective	<b>Selective courses (10 Credits)</b>
Economic evaluation in health care	2	Elective	
Health Policy	2	Elective	
Mental Health	2	Elective	
Global Health	2	Elective	
Disaster management in Health	1	Elective	
Demographics	1	Elective	
Medical Sociology	1	Elective	
Elderly health	1	Elective	
Oral health care	1	Elective	
Spiritual health and ethics	1	Elective	
Occupational ergonomics	1	Elective	



Internship	2	Core	Compulsory
Dissertation	4	Core	
Total = 34			

## **Modules description**

The modules listed above are described as follows.

### **Applied Biostatistics**

#### **Aim**

Students will understand the fundamental concepts of Biostatistics and will learn how to use “estimation” method and “hypothesis testing” method for generalizing results of a study sample to a target population. They will also learn “regression” and “correlation” methods for examining associations among medical-health variables. Students will also be familiar with Statistical Package for the Social Sciences (SPSS) to be able to analyze data and to solve the assignments of the course.

#### **Description (Teaching method)**

1. Sounded power point slides via NAVID website of TUMS
2. Practical examples by SPSS
3. Feedback for solutions of assignments by the tutor via NAVID website of TUMS

#### **Course content**

##### **Chapter 1**

- 1.1 INTRODUCTION
- 1.2 SOME BASIC CONCEPTS
- 1.3 MEASUREMENT AND MEASUREMENT SCALES
- 1.4 SAMPLING AND STATISTICAL INFERENCE

##### **Chapter 2**

- 2.1 INTRODUCTION
- 2.2 GROUPED DATA: THE FREQUENCY DISTRIBUTION
- 2.3 DESCRIPTIVE STATISTICS: MEASURES OF CENTRAL TENDENCY
- 2.4 DESCRIPTIVE STATISTICS: MEASURES OF DISPERSION

##### **Chapter 3**

- 3.1 INTRODUCTION
- 3.2 PROBABILITY DISTRIBUTIONS OF DISCRETE VARIABLES
- 3.3 THE BINOMIAL DISTRIBUTION
- 3.4 THE POISSON DISTRIBUTION
- 3.5 CONTINUOUS PROBABILITY DISTRIBUTIONS
- 3.6 THE NORMAL DISTRIBUTION
- 3.7 NORMAL DISTRIBUTION APPLICATIONS

## Chapter 4

### 4.1 INTRODUCTION

### 4.2 CONFIDENCE INTERVAL FOR A POPULATION MEAN

### 4.3 CONFIDENCE INTERVAL FOR A POPULATION PROPORTION

### 4.4 DETERMINATION OF SAMPLE SIZE FOR ESTIMATING MEANS

### 4.5 DETERMINATION OF SAMPLE SIZE FOR ESTIMATING PROPORTIONS

## Chapter 5

### 5.1 INTRODUCTION

### 5.2 HYPOTHESIS TESTING: A SINGLE POPULATION MEAN

### 5.3 HYPOTHESIS TESTING: THE DIFFERENCE BETWEEN TWO POPULATION MEANS

### 5.4 PAIRED COMPARISONS

### 5.5 HYPOTHESIS TESTING: A SINGLE POPULATION PROPORTION

### 5.6 HYPOTHESIS TESTING: THE DIFFERENCE BETWEEN TWO POPULATION PROPORTIONS

## Chapter 6

### 6.1 An introduction to one-way analysis of variance

### 6.2 The design of one-way analysis of variance

### 6.3 The model of one-way analysis of variance

### 6.4 ANOVA table and hypothesis test

### 6.5 Multiple comparisons among groups

## Chapter 7

### 7.1 INTRODUCTION

### 7.2 THE REGRESSION MODEL

### 7.3 THE SAMPLE REGRESSION EQUATION

### 7.4 EVALUATING THE REGRESSION EQUATION

### 7.5 USING THE REGRESSION EQUATION

### 7.6 THE CORRELATION COEFFICIENT

## Methods of evaluation

1. On-time solutions of assignments
2. Reports on the SPSS outputs of assignments

## References

*BIOSTATISTICS: A Foundation for Analysis in the Health Sciences; TENTH EDITION,*  
*WAYNE W. DANIEL (2013)*

## Principles of Epidemiology

### Aim

This module aims to equip participants with the knowledge of principal of Epidemiology. Students will understand the fundamental concepts of Epidemiology and will learn how to use the principal of Epidemiology in further design of an Epidemiological study.

### Description (Teaching method)

The main part of the teaching takes place in the form of lectures/seminars. The participants are encouraged to be active and involve in their learning process.

### Course content

For this course, the following book with be the main source of teaching, and the chapters of the book with be taught during the sessions of this course as follows:

**Source: Gordis, L. (2019). Gordis Epidemiology. 6th edition. Philadelphia: Elsevier Saunders.**

S. No	Topics	Chapter No.
1	Introduction to epidemiology	1
2	Dynamics of disease transmission	2
3	Disease surveillance and measures of morbidity	3
4	Measures of mortality	4
5	Epidemiological study designs, observational studies	7
6	Cohort study	8
7	Case control and other study design	9, 10
8	Interventional studies	10, 11
9	Risk estimation	12, 13
10	Causation (Bias, confounding and interaction)	14, 15, 16
11	Causation (Bias, confounding and interaction)	14, 15, 16
12	Assessing diagnostic tests and screening	5
13	Outbreak investigation	The class Slides
14	Surveillance system	The class Slides
15	Exam	

### Methods of evaluation

Formative evaluation includes class activities and the quality of the sections of the proposals that will be written by participants during the course.

## **Research Methods in Health (Quantitative & Qualitative)**

### **Aim**

This module aims to equip participants with the knowledge and skills to understand, design and conduct high quality quantitative and qualitative research.

### **Description (Teaching method)**

Interactive teaching: teacher-student interaction, student-student interaction, and use of PowerPoint presentations. The participants are encouraged to be active and involve in their learning process.

### **Course content**

Identifying and prioritizing research topics, writing the statement of the problem, review of available literature, formulation of research objectives, introduction to health systems research methodologies in quantitative and qualitative designs, sampling methods and sample size in quantitative and qualitative studies, table of variables, reliability and validity of the study in quantitative and qualitative studies, questionnaire development, data gathering methods in quantitative and qualitative studies (semi-structured interview and focus group discussion), ethical consideration in research, mixed method studies

### **Methods of evaluation**

Formative evaluation includes class activities and the quality of the sections of the proposals that will be written by participants during the course.

### **References**

1. Catherine Pope, Nicholas Mays, Qualitative Research in Health Care, Third edition, 2006, BMJ books
2. Varkevisser, C. M., Pathmanathan, I., & Brownlee, A. (2003). Designing and conducting health system research projects: volume 1 & 2, IDRC, Ottawa, ON, CA.

## **Health Systems**

### **Course Purpose and Learning Objectives**

The overall purpose of this course is to improve understanding and enhance analytical capacity of participants in the area of health system and its analysis. In this course knowledge and skills required for structuring, analyzing and improving health systems will be taught. A mix of interactive lectures, seminars, case studies, small group tasks and presentations, review of scientific papers and discussion and individual assignments are used for achieving the course goals.

By the end of the course students will be able to:

- Define a health system, identify the different components of a health system, explain how they interact with one another, and be able to appraise the strengths and limitations of different health system models and frameworks including the WHO health system conceptual framework;
- Elucidate the journey of progression from primary health care to health system strengthening and from the latter to universal health coverage and sustainable development goals as the thinking on health systems has progressively evolved;
- Comprehend what is meant by health system performance assessment, identify measures and indicators that can help assess performance of the health system and apply it in a country setting;
- Identify the elements of the different health system building blocks and what it takes to improve their function that would lead to the achievement of better results in terms of the achievement of objectives and health outcomes;

### **Course Content and Structure**

- Introduction
- Health Systems: Concepts and Comprehension
- Health System Strengthening
- Health System: Models and Frameworks
- Health System: Intermediate and Final Outcomes
  - o Intermediate Outcomes: Coverage, Quality, Equity, Efficiency
  - o Final outcomes: Health, Fairness, Responsiveness
- Health System: Governance and leadership
- Health System: Financing and Health Insurance
- Health System: Health Workforce Planning and Performance
- Health System: Service Provision/delivery
  - o Levels of service delivery (primary, secondary, tertiary)
- Health System: Health Information system (Health Technology Assessment, Assessing HIS)
- Health System: Medical products, vaccines and technologies

- Evaluation of Health Systems and Performance Assessment
- Accreditation of health care organizations and Quality Assurance
- International plans: MDGs and SDGs
- Social determinants of health (SDH)
- Health equity / equality
- Universal Health Coverage (UHC); barriers to achieving UHC
- System thinking approach
- Contextual factors affecting health systems
- Health sector reform: Definitions and concepts
- Health sector reform: Indicators for evaluation
- Experience of successful and unsuccessful reform cases in the world
- Integrated health care
- Various forms of private-public participation (PPP) including Outsourcing: Challenges and opportunities
- Centralization and de-centralization in health systems
- Health System Performance: Country reviews
- Summary of the course and concluding remark

### **Evaluation of student**

- Class participation and communication (20%)
- Country Case Study presentation (20%)
- Mid-term exam (20%)
- Final written exam (40%)

### **References**

- Evans DB, Etienne C. Health systems financing and the path to universal coverage. World Health Organization; 2010.
- Gaydos LM, Fried B. World health systems: challenges and perspectives. Health Administration Press; 2012.
- Kutzin J, Sparkes SP. Health systems strengthening, universal health coverage, health security and resilience. Bulletin of the World Health Organization. 2016; 94(1):2.
- Murray CJ, Frenk J. A framework for assessing the performance of health systems. Bulletin of the world Health Organization. 2000; 78:717-31.
- Nolte E, McKee CM. Measuring the health of nations: updating an earlier analysis. Health affairs. 2008;27(1):58-71.
- Reich MR, Harris J, Ikegami N, et al.. Moving towards universal health coverage: lessons from 11 country studies. The Lancet. 2016;387(10020):811-6.
- Sekhri Feachem N, Afshar A, Pruett C, Avanceña AL. Mapping healthcare systems: a policy relevant analytic tool. International Health. 2017;9(4):252-62.

- Wong J. Achieving universal health coverage. Bulletin of the World Health Organization. 2015;93:663-4.
- World Health Organization. Everybody's business--strengthening health systems to improve health outcomes: WHO's framework for action.
- Health system performance assessment: a framework for policy analysis / Irene Papanicolas, Dheepa Rajan, Marina Karanikolos, Agnes Soucat, Josep Figueras, editors . World Health Organization; 2022
- The world health report 2000: health systems: improving performance. World Health Organization; 2000.
- World Health Organization. The World Health Report 2008 - primary Health Care (Now More Than Ever), Geneva, 2008
- World Health Organization. The World Health Report 2010 - Health systems financing: the path to universal coverage, Geneva 2010
- Every Body's Business: Strengthening Health Systems to Improve Outcomes, 2007
- USAID's Vision for Health System strengthening, 2015
- Health-system reform and universal health coverage in Latin America; Lancet, Volume 385, No. 9974, p1230–1247, 28 March 2015
- WHO. Health System Strengthening Glossary.  
[http://www.who.int/healthsystems/hss\\_glossary/en/index5.html](http://www.who.int/healthsystems/hss_glossary/en/index5.html)



## **Health Economics**

### **Aim**

This course intends to provide students with an introduction to the key concepts, methods and understanding of the application of economics to health and health care. In particular, students will be introduced to concepts such as opportunity-cost, supply, demand, and market equilibrium and their application in the health sector. Also, students will understand the principles and techniques of economic evaluation of health interventions and methods of health care financing.

### **Description (Teaching method)**

The main part of the teaching takes place in the form of lectures/seminars where the students are encouraged to actively participate. Practical exercises are given continuously, and students be encouraged to contribute themselves with examples.

### **Prerequisite**

The students should be familiar with the health system and its components.

### **Course content**

- ✓ Key Concepts in Economic   ○ Scarcity   ○ Macro and Micro Economics   ○ Production Possibility Frontier (PPF)
  - Opportunity Cost   ○ Utility And Welfare
  - Marginal Analysis (Marginal Utility, Marginal Cost, ...)
  - Law of Diminishing Return   ○ Efficiency (Technical and Allocative)
- ✓ Introduction to Health Economics   ○ Importance of Health Economics   ○ Scope of Health Economics   ○ Characteristics of the Health Market
- ✓ Market and Market Failure in Health and Health Care   ○ Perfect competition   ○ Market failure   ○ Role of government in healthcare
- ✓ Demand and Supply of Health   ○ Demand for Health and Health care   ○ Determinants of Demand for Health and Healthcare   ○ Supply and Cost Functions for Healthcare Providers   ○ Determinants of Supply of Healthcare
- ✓ Elasticity of Demand   ○ Price Elasticity of Demand   ○ Income Elasticity of Demand
- ✓ Production of Health and Health care   ○ Firms and Inputs Involved in Producing Health Care   ○ Economies of Scale and Scope
- ✓ Health Care Financing and National Health Accounts

- ✓ Paying Healthcare Providers
- ✓ Health Insurance ○ Theory of Health Insurance
  - The Demand for and Supply of Health insurance ○
  - Market Failure in Health Insurance Markets
- ✓ Economic Evaluation of Health Interventions ○ Cost Effectiveness Analysis ○ Cost Utility Analysis ○ Cost Benefit Analysis
- ✓ Burden and Economic Burden of Disease
- ✓ Equity in Health
- ✓ Efficiency and cost control in health systems

### **Methods of Evaluation ○**

Class assignments

- Final exam

### **References**

1. Guinness, L., and V. Wiseman. "Introduction to Health Economics (Understanding Public Health). Maidenhead." (2011).
2. Folland, Sherman, Allen Charles Goodman, and Miron Stano. The Economics of Health and Health Care: Pearson New International Edition. Routledge, 2016.
3. McPake, Barbara, Charles Normand, Samantha Smith, and Anne Nolan. Health economics: an international perspective. Routledge, 2020.

## **Health Services Planning and Management**

Given the peculiar features of health sector, getting to know this area is of overly high importance for those interested and required to work in health care at various jobs including managerial and planning positions. Accordingly, this course aims to provide the students with the apt knowledge and skills in relation to health management principles and practices.

### **Description (Teaching method)**

The main part of the teaching takes place in the form of lectures/seminars where the students are encouraged to actively participate. Theoretical parts are interlinked with group discussions related to the teaching. Practical examples are to a large extent presented, and the students will be encouraged to contribute in the course.

### **Course content**

1. Introduction & outline
2. Health Management: Theories, principles, gurus
3. Health Management: Planning
4. Health Management: Leadership and motivation
5. Health Management: Communication
6. Health, health system, health sector, health sector features
7. Quality improvement in health care
8. Human resource management in Health care
9. Performance management in Health care
10. Resource allocation in health care
11. Health care marketing

### **Methods of Evaluation** ○

- Class assignments
- Final exam

### **References**

- Handbook of Healthcare Management, Myron D. Fottler, Donna Malvey, Donna J. Slovensky, Edward Elgar Pub, 2017
- The Oxford Handbook of Health Care Management, Edited by Ewan Ferlie, Kathleen Montgomery, and Anne Reff Pedersen
- Healthcare Management. Kieran Walshe and Judith Smith (2007).

### **Computer Application in Public Health**

This module aims to equip participants with the knowledge and skills to understand and apply information technology in public health.

#### **Description (Teaching method)**

This module will mainly be held in the form of lectures/seminars, where the students are encouraged to actively participate. Interactive teaching including teacher-student interaction, student-student interaction, and use of PowerPoint presentations, will be applied.

#### **Course content**

1. Introduction & outline
2. E-Health
3. Tele-Medicine
4. Electronic Health Records
5. Mobile health
6. Using of international data sources
7. Management Information System (MIS)
8. Health Information system (HIS)
9. Application of Big Data in health
10. Electronic Health Records
11. Using of Endnote for managing references

#### **Methods of evaluation**

Half of score will be based on class assignments, and other half by the Final exam

#### **References**

1. Vogel, Lynn Harold, and Leslie E. Perreault. "Management of information in healthcare organizations." Biomedical Informatics. Springer, New York, NY, 2006. 476-510.
2. Shaw, Tim, et al. "What is eHealth (6)? Development of a conceptual model for eHealth: qualitative study with key informants." Journal of medical Internet research 19.10 (2017): e324.
3. World Health Organization. Telemedicine: opportunities and developments in member states. Report on the second global survey on eHealth. World Health Organization, 2010.

## **Environmental Health**

At the end of this course, participants will be able to:

1. Identify environmental-related diseases
2. Understand the relation between environmental health-related topics with sustainable development and its goals (SDGs)
3. Explore health-related databases such as IHME and DHS
4. Describe environmental toxicology
5. Discuss drinking water quality, pollutants, health effects and treatment processes
6. Discuss air pollutants, health effects and preventive or control measures or methods
7. Describe wastewater characteristics, classifications, contaminants, health effects and treatment processes
8. Explain principles, different categories and health effects of solid waste, solid waste management hierarchy
9. Disinfectants and their application
10. Discuss food borne hygiene

### **Description (Teaching method)**

The main part of teaching is in form of lectures/seminars. Active student participation in this course is expected. Students must be prepared to discuss and participate in class activities.

### **Course schedule**

Session	Topic
1	Course overview, General discussion on current environmental issues, Introduction into IHME and DHS databases
2	Sustainable development and environmental factors and diseases
3	Environmental toxicology
4	Water-related diseases (Microbial, non-microbial), sources, agents, prevention and control
5	Principles of drinking water quality, definitions and parameters
6	Conventional water treatment processes for drinking, flow diagram and steps, parameters, indicators, etc.

## Aim

7	Conventional water treatment processes for drinking, flow diagram and steps, parameters, indicators, etc.
8	Municipal wastewater: definition, categories, characteristics, significance and health-related concerns

9	Conventional process for municipal wastewater treatment e.g. activated sludge process, principles of the process and reactions, flow diagram and steps, indicators, etc.
10	Solid waste management, definitions, categories and sources, environmental health-related concerns, hierarchy of Solid waste management; Reduce, Reuse, Recycle (3R) and (5R) approaches, disposal methods and technologies
11	Continue of solid waste disposal methods and technologies, with special focus on hazardous waste management in hospitals and health-care facilities, laboratories, etc.
12	Principles of air pollution, definition, sources and categories, air pollution scenarios worldwide, health concerns and diseases (with special focus on PM-related disease data illustrated in IHME)
13	Air pollution control technologies
14	Principles of food hygiene, definitions, sources and parameters, agents (microbial or chemical), food-borne diseases
15	Food borne diseases, prevention methods, strategies and procedures for food hygiene and safety
16	Disinfection, principles, categories
17	Application of disinfectants

**Methods of Evaluation**   ○ Class assignments,  
Contribution, presentations   ○ Final exam

## References

- Environmental health (2004) by Dade W. Moeller, 3<sup>rd</sup> edition, President and Fellows of Harvard College.
- Environmental engineering (2003) by Joseph A Salvato, Nelson N Nemerow and Franklin J Agardy, 5<sup>th</sup> edition, John Wiley and sons Inc.
- Environmental health engineering in the tropics, water, sanitation and disease Control (2019) by Sandy Cairncross and Sir Richard Feachem, 3<sup>rd</sup> edition, Routledge.
- The handbook of environmental health (2013) by Frank R. Spellman, Melissa L. Stoudt. Scarecrow Press, Inc.

## **Epidemiology & Control of Communicable Diseases**

### **Aim**

At the end of this course, participants will be able to:

- Describe what special is about infectious disease epidemiology
- Describe how to decide whether an illness is infectious
- Describe Mathematical Models for epidemics
- Plan to investigate an outbreak
- Describe how to set up a surveillance system for infectious diseases
- Describe the application of Geographic Information Systems in infectious diseases
- Describe the role of vaccination in infectious diseases
- Explain the epidemiology of airborne transmission, blood borne and sexual transmission, and vector-borne transmission

### **Description (Teaching method)**

The main part of the teaching takes place in the form of lectures/seminars where the students are encouraged to actively participate. Theoretical parts are interleaved with group discussions related to the teaching. Practical examples are given continuously, and students be encouraged to contribute themselves with examples.

### **Prerequisite**

The students should know principal of epidemiology including the epidemiological measures of disease occurrences, measures of associations and epidemiological studies designs.

### **Course content**

- ✓ Introduction to the infectious diseases epidemiology
- ✓ The natural history of infectious diseases
- ✓ Methods to decide whether an illness is infectious
- ✓ Mathematical Models for epidemics
- ✓ Outbreak investigation
- ✓ Surveillance of infectious diseases
- ✓ Measuring infectivity
- ✓ Immunity to Infectious Diseases
- ✓ Sero-epidemiology
- ✓ The study of contacts patterns
- ✓ Spatial epidemiology (Geographic Information Systems)
- ✓ The epidemiology of vaccination
- ✓ Investigating emerging infectious diseases
- ✓ Epidemiology of Particular Infectious Diseases
- ✓ Airborne Transmission: Influenza and Tuberculosis



- ✓ Infectious Childhood Diarrhea in Developing Countries
- ✓ Blood borne and Sexual Transmission: HIV/AIDS
- ✓ Blood Borne and Sexual Transmission: Hepatitis B and C
- ✓ Sexual Transmission: Chlamydia trachomatis
- ✓ Vector-Borne Transmission: Malaria, Dengue, and Yellow Fever
- ✓ Investigating nosocomial transmission
- ✓ WHO programs for infectious diseases
- ✓ The pandemic of coronavirus

### **Methods of Evaluation** ○

Class assignments

- Final exam

### **References**

8. Modern Infectious Disease Epidemiology (2017) by Johan Giesecke
9. Modern Infectious Disease Epidemiology (2010) by Alexander Krämer, Mirjam Kretzschmar, Klaus Krickeberg
10. Infectious Disease Epidemiology (2016) by Ibrahim Abubakar, Helen R. Stagg, Ted Cohen, and Laura C. Rodrigues

## **Epidemiology & control of Non-Communicable Diseases**

### **Aim**

Introduction to Epidemiology of main NCDs and the prevention and control programs.

### **Description (Teaching method)**

The course will be provided by lecture presented by the tutors. The course will be interactive and the students will be encouraged to involve in discussions. Students should also do the relevant assignments and present the results in the class.

### **Course content**

Session	Subject
1	Introduction, Course objectives and plan

2	Global burden of NCDs and their risk factors
3	SDG goals, SDG Goal 3.4
4	Global NCD action plan
5	WHO NCD Best Buys
6	NCD services, WHO PEN
7	NCD services, WHO Hearts package
8	NCD services, Iran's experience, IraPEN
9	Cardiovascular Risk stratification models
10	NCD Investment case studies
11	Smoking
12	Injuries
13	Mental Health
14	NCD surveillance
15	National action plan for non-communicable diseases prevention and control in Iran
16	Student's Presentations
17	Student's Presentations

### Methods of evaluation

1. 50% written exam
2. 50% course assignments

### References

1. Global action plan for the prevention and control of noncommunicable diseases 2013–2020. Geneva, World Health Organization; 2013. Available from: [who.int/nmh/events/ncd\\_action\\_plan/en/](http://who.int/nmh/events/ncd_action_plan/en/).
2. Sustainable Development Goals. New York, The United Nations; Available from: The: <http://www.sustainabledevelopment.un.org/?menu=1300>.
3. Peykari, N., Hashemi, H., Dinarvand, R. et al. National action plan for noncommunicable diseases prevention and control in Iran; a response to emerging epidemic. J Diabetes Metab Disord 16, 3 (2017). <https://doi.org/10.1186/s40200017-0288-4>
4. Organization WH. Tackling NCDs:'best buys' and other recommended interventions for the prevention and control of noncommunicable diseases. World Health Organization; 2017.

## Community Health

### Aim

This course presents knowledge and skills in the concepts of community health. Community health is a major field in public health. It focuses on protection and promotion of the health status of population groups and communities. In community health will be emphasized to identify community health priorities and resources, Program, Implementation, and Evaluation in community interventions.

### Description (Teaching method)

A mix of interactive lectures, case studies and individual assignments and presentations are used for achieving the course goals.

### Course content

1. Community and cultural concepts
2. Factors that affect the health of a community
3. Organizations that help shape community health
4. Healthy settings- school health program as a component of community health
5. Community health strategies for infants, children, adolescents, adults, elder
6. Theory-based approaches to community
7. Community assessment
8. Programing *community-based intervention*
9. Implementing *community-based intervention*
10. Evaluating *community-based intervention*

### Methods of evaluation

Thirty percent of score will be based on class assignments, 20 percent of score will be based on class presentation and other 50 percent by the Final exam

## Reference

- 1- An introduction to community health. James F. McKenzie, Robert R. Pinger, Jerome E. Kotecki.—5<sup>th</sup> ed.
- 2- Evaluating public and community health programs / Muriel J. Harris. — 1<sup>st</sup> ed.
- 3- Health program planning and evaluation: a practical, systematic approach for community health.L. Michele Issel and Rebecca Wells. Fourth edition

## **Health Promotion & Health Education**

### **Aim**

The course will provide knowledge and skills in health promotion and health education and will explore various topics that directly impact the profession of health education and health promotion to make participants be able to contribute to a sustainable development in public health. The historical origins of health education & public health, selected learning theories, emerging issues and trends in the field and public health professional responsibilities in various practice settings will be examined.

### **Description (Teaching method)**

The main part of the teaching takes place in the form of lectures/seminars where the students are encouraged to actively participate. Theoretical parts are interleaved with group discussions related to the teaching. Practical examples are given continuously, and students be encouraged to contribute themselves with examples. Practical exercises to interpret results of studies of groups and practical exercises in using some measuring instruments are included.

### **Course content**

- Introduction & Course Orientation
- Historical Aspects of Health and Health Education
- Roles, Responsibilities, and Practice Settings for Public Health professional
- Ethics and Health Education Practice
- Philosophical Foundations of Health & Health Education
- Health Behavior and Health Planning Theories
- Basic strategies for health promotion, “enabling, mediating, and advocacy”
- Principal Concepts Outlined By Ottawa Charter For Health Promotion
  - Building Healthy Public Policy.
  - Creating Supportive Environment.
  - Strengthening Community Action.
  - Developing Personal Skills.
  - Reorienting Health Services.
- Future Issues in Health Education and Promotion

**Methods of Evaluation** ○

- Class assignments
- Final exam

**References**

Cottrell, R.R., Girvan, J.T. & McKenzie, J.F. (2015). Principles and Foundations of Health Promotion and Education (5th Edition). San Francisco, CA: Pearson Benjamin Cummings

**Demography**

**Prerequisite or Concurrent:** None

**Number of Units:** 1 credit

**Type of Unit:** Theoretical

**Course Code:** 12

**Aim**

- Familiarity with the major concepts in population science such as fertility, migration, marriage, divorce, aging, mortality and family
- Examining the impact of the areas of interest in demography on individual, family and social health
- The need to explain the attention to population and demographic approaches in planning and policymaking for health
- The main theories of fertility and the role of population structures in the development of health and welfare of society

**Course Content: 17 Hours Theoretical**

- Introduction, general population
- Definition, types, distribution, population pyramid, population structure, population growth
- History of family planning, definitions, objectives and justification of necessity
- Changes and developments in population in the world and Iran and the main population indicators in Iran
- Comparison of the course of development in industrialized and developing countries, characteristics and distribution of dispersion in the country according to various factors affecting the population pyramid and its trend
- Population and sustainable development: definitions, concept and stages of population transition, theories of population transition, relationship between

population and sustainable development and related needs, population and environment, urbanization, social anomalies resulting from inappropriate population changes, environmental factors affecting population, International Conference on Population and Development

- Population policies: population policies in the world, population indicators, creating balance with population growth and resources, policies and goals of the whole country • Health and reproductive rights
- Definition of health, family and its cohesion
- Disease and mortality: analysis of causes and consequences
- Population formation (marriage, fertility, family structures, kinship)
- Theories of fertility (views on developments-increasing or decreasing population)
- Social, health, economic and environmental consequences of population
- Disease patterns and population structures (analysis of population pyramid)
- Population aging and its health and economic consequences
- Development and population
- Population and environment

## References

- 1- Population, Development, and Fertility Health, Dr. Kamal Shadpour and colleagues, Mitra Publication.
- 2- Comprehensive Public Health Book, Volume 3, Honorable Authors (Professors of Universities), Arjmand Publication, Second Edition, 2006.
- 3- Ministry of Health and Medical Education Guidelines.
- 4- ICPD-4.
- 5- Marriage and Family in Iran: Dr. Manouchehr Mohseni and Abolghasem Pourreza.
- 6- Health Sociology, Wealth and Justice, Richard Wilkinson and Kate Pickett, translated by Shirin Ahmadnia and Abolghasem Pourreza, Samt Publication.
- 7- Encyclopedia of Demography, Statistical Center Publication.
- 8- Population and Development with Emphasis on Iran (Ten Articles), Dr. Mohammad Mirzaei, Center for Population Studies and Research in Asia and the Pacific, 2005.
- 9- Demography: Foundations and Backgrounds, Dr. Hassan Sarai, Samt Publication.

10- Iranian Journal of Sociology, Iranian Society of Sociology Publication, Quarterly.

### **Methods of Evaluation**

- Evaluation of participation in group discussions
- Attendance in class
- Presentation in the form of a conference
- Written exam

## **Economic Evaluation of Health and Treatment**

**Programs Prerequisite or Concurrent:** Health Economics 08

**Number of Units:** 2 credits **Unit**

**Type:** Theoretical

**Course Code:** 29

### **Aim:**

The ultimate goal of this course is to understand the principles of economic evaluation and the different methods of conducting economic evaluation of health services, and to use these methods in policy making for health service delivery. Economic evaluation includes modern methods that are increasingly used in the analysis of health service efficiency and policy makers' decisions, and are currently of serious interest to various sectors of the country's health system.

### **Course Content: 34 hours theoretical**

- Basic concepts of economic evaluation of health services
- Characteristics of a complete economic evaluation
- Types of complete economic evaluation
- Steps of conducting economic evaluation
- Formulating an appropriate question
- Perspective and economic evaluation
- Identifying alternatives
- Determining the time frame of the study
- Choosing the appropriate method for conducting the evaluation (design)
- Choosing the type of economic evaluation
- Types of costs, including identifying costs, measuring costs, and valuing costs
- Types of outcomes, identifying outcomes, measuring outcomes, and valuing outcomes
- Measuring quality of life
- Measuring preference (QALY and DALY)
- How to combine costs and outcomes (CER-ICER-Cost per QALY))
- Time preference and discounting (costs and outcomes)
- Modeling (Markov and decision tree)
- Uncertainty and sensitivity analysis in economic evaluation
- Health technology assessment (HTA)
- Using economic evaluation in decision making
- Calculating the burden of disease and the economic burden
- Critical appraisal of economic evaluations
- Criteria and indicators for prioritization in the health system, including the importance of the problem (such as prevalence and burden of disease), costeffectiveness, cost-effectiveness and affordability, feasibility, acceptability,



political, ethical, justice and value issues, and the role of economic evaluation in prioritizing health programs.

## References

- Health Care Economics, Thomas E. Getzen, 2007, Temple University
- Essentials of Health Economics, Diane M. Dewar, 2010, University at Albany - State University of New York
- Santerre, RE and SP Neun. (2004) Health Economics: Theories, Insights and Industry Studies, 3d ed. Mason, Ohio: Thomson South-Western.
- Folland, S, Goodman, AC, and M. Stano. (2007) The Economics of Health and Health Care, 5th ed. Upper Saddle River, NJ: Pearson/Prentice Hall.
- Drummond, MF et al. (2015) Economic Evaluations of Health Care Programmes. Oxford: Oxford University Press.
- Gray, A. M., Clarke, P. M., Wolstenholme, J. L., & Wordsworth, S. (2011). Applied methods of cost-effectiveness analysis in healthcare (Vol. 3). Oxford University Press.
- Fox-Rushby, J., & Cairns, J. (2005). Economic evaluation. McGraw-Hill Education (UK).

## Methods of Evaluation

- Scientific critique of selected article: 40%
- Preparing a protocol for conducting an economic evaluation: 30%
- Written exam: 30%

## Occupational Health

**Prerequisite or Concurrent:** None

**Number of Units:** 1 credit

**Type of Unit:** Theoretical

**Course Code:** 06

## Aim

At the end of this course, the student will be able to become familiar with the harmful factors of different work environments, identify and evaluate the harmful factors and hazards in the work environment, and provide appropriate general principles for controlling them. Students who complete this course will gain some knowledge and skills to maintain the

health and safety of individuals in the work environment, and will also become familiar with the occupational diseases and their management to some extent.

### **Course Content: 17 Hours Theoretical**

#### 1 - Definitions and concepts

- The burden of diseases attributable to occupational hazards in Iran and other countries

#### 2- Classification of harmful factors in the work environment

#### 3- Physical harmful factors

- Noise
- Vibration
- Weather conditions
- Radiation (ionizing radiation, non-ionizing radiation, magnetic fields, lighting)
- Measurement, evaluation and control of hazards related to physical harmful factors

#### 4- Chemical and toxicological harmful factors

- Gases and vapors
- Aerosols (particles, fibers, fume mist)
- Familiarity with industrial toxins and biological monitoring of toxins
- Measurement, evaluation and control of chemical harmful factors

#### 5 - Biological harmful factors

- Identification, measurement and control of biological harmful factors (bioaerosols)

#### 6- Ergonomics in the work environment

#### 7- Occupational diseases and their management

#### 8- Safety and accidents resulting from work

### **References**

- Occupational safety and health for engineers - Roger. L. Breuer, Wiley publication, 2016 or last edition
- Introduction to ergonomics, S. Bridger, last edition
- Laurence k. Wang, Norman c Pereira, Air pollution control engineering last edition.

### **Methods of Evaluation**

- Assignments and class work and attendance: 30% of the final grade
- Final exam: 70% of the final grade

## **Elderly Care**

**Program Prerequisite or Concurrent:** None

**Number of Units:** 1 credit **Unit**

**Type:** Theoretical

**Course Code:** 20

### **Aim**

The student should be familiar with aging as part of the evolutionary process, as well as with different theories of aging. Also, he should be familiar with the physiological changes that occur in old age and distinguish normal aging changes from common diseases of old age and geriatric syndromes. After acquiring relevant knowledge related to the above topics, he should have a correct understanding of the elderly and their needs and considerations that should be taken into account when dealing with an elderly person. He should also be familiar with caring for the elderly and know the common care systems in the world. In addition, he should be familiar with the phenomenon of population aging and be aware of the age pyramid of the population and its changes in recent decades. It is expected that the student will be able to design research related to aging and use the total results of it to improve the programs related to the health of the elderly in the society.

### **Course Content: 17 hours theoretical**

- Familiarity with the changes of the age pyramid of the population and the phenomenon of aging
- Familiarity with the aging process and theories of aging Physiological changes of old age
- Common diseases in old age

- Geriatric syndromes

## **References**

Halter JB. Hazzard's geriatric medicine and gerontology. Ouslander JG, Studenski S, High KP, Asthana S, Supiano MA, Ritchie CS, editors. McGraw-Hill Professional Publishing: latest edition

## **Methods of Evaluation**

100% final exam, multiple choice or descriptive

## **Spiritual Health and Ethics in Public Health**

**Prerequisite or Concurrent:** None

**Number of Units:** 1 credit

**Unit Type:** Theoretical

**Course Code:** 15

## **Aim**

In this course, students will become familiar with the concept of spiritual health and ethics in public health and with the rights and types of laws and regulations governing the health system, work relations between doctors, nurses and other staff, clinical and medical ethics, consent and exoneration, and the charter of patient rights.

## **Course Content: 17 Hours Theoretical**

- Definition of spiritual health
- Definition of rights and types of them
- Definition of legal system
- Types of legal systems
- Medical ethics
- History of medical ethics and patient rights in Iran and the world
- Consent and exoneration
- Confidentiality and preservation of patient secrets

- Patient rights charter
- Patient rights charter in Iran
- Legal standards for doctors and nurses in providing services to patients
- Types of medical and pharmaceutical crimes
- Medical error and negligence

### **Methods of Evaluation**

- Attendance and active participation in class: 10%
- Exam during the semester or doing class assignment: 20%
- Written exam at the end of the semester: 70%

### **References**

- Sadr Mamtaz, Naser, Dehnavi, Hamed, Legal Standards in Health System, Berga.
- Publications Eslami Tabar, Shahriar, Medical Law, Cultural Institute of Publication, Tehran.
- Professor George J. Annas J.D. M.P.H. The Rights of Patients, Third Edition: The authoritative ACLU guide to patient rights, Southern Illinois University Press

## **Policy and Policy Analysis in Health System**

**Prerequisite or Concurrent:** None

**Number of Units:** 1 credit

**Unit Type:** Theoretical

**Course Code:** 26

### **Aim**

By taking this course, the student should be able to understand the definition and necessity of policy-making in health systems, with a focus on public health, recognize the components of policy analysis, gain the ability to understand and analyze policy patterns in the health system, and be able to analyze and evaluate the health system of Iran as a whole and the country's health network system in particular, in terms of the degree of conformity with a scientific, evidence-based, justice-oriented, responsive, and sustainable health policy. Accordingly, the main objective of this course is to develop the ability to analyze current policies in the health system of the country, public health, family medicine, referral system, electronic health records, and primary health care.

### **Course Content: 17 Hours of Theoretical Instruction)**

- The necessity of policy-making in health systems
- Definition of concepts in policy-making and strategic planning in the health system
- Definition and explanation of the relationship between politics and policy-making in the health system
- Levels, components, framework, and cycle of policy-making, with a focus on the structural foundations of the health system
- Summary of the main approaches to policy analysis and their application in the health system of Iran
- How to formulate and design policies
- Command and legitimacy for the desired policy of the health system, Iranian examples
- Analysis of stakeholders in health policy-making
- Establishment and evaluation of health policies, Iranian documented examples
- Civil society, non-governmental sector, and public participation in health policymaking
- Evidence-based, conceptual, necessary, and practical ways to achieve health policy in Iran
- Diplomacy in the health system, Iranian examples
- Justice in health: the foundation of a health-oriented policy
- Conflict of interest and corruption in health systems, Iranian challenges

- Desirable policy-making to increase the efficiency of the Iranian health system
- Legislation for the health system
- Policy analysis of several examples of health policies in Iran and the world, with the selection of professors and students.

## **Management of Infectious and Non-infectious diseases (Communicable & Non-communicable diseases)**

**Prerequisite or Concurrent:** None

**Number of Units:** 2 credits

**Unit Type:** Theoretical

**Course Code:** 13

### **Aim**

The student will be able to define and understand the epidemiological perspectives of infectious and non-infectious diseases, acquire the necessary understanding of the methodological characteristics of the mechanisms and interactions leading to the reduction of transmission and mortality from these diseases, and with the knowledge of data sources and information related to Iran and the world, prepare and present an epidemiology report. He/she will have the necessary understanding of the importance of epidemiological transition with emphasis on the common methodological problems of this group of diseases, as a major burden of diseases in Iran and the world. He/she will acquire sufficient knowledge of the common modifiable risk factors of these diseases throughout a person's life. He/she will know the screening, care and intervention methods for the control of infectious and noninfectious diseases, as effective and practical tools in public health. He/she will pay attention to the relationship between economic poverty and diseases and with the knowledge of data sources and information related to Iran and the world, he/she will be able to prepare and present a report based on the management of a selected infectious and non-infectious disease with priority in Iran. In this course unit, the student will become familiar with the key areas of principles, foundations and strategies of planning for the management, prevention and control of infectious and non-infectious diseases.

### **Course Content: 34 Hours of Theory**

- Introduction to epidemiology of infectious and non-infectious diseases, with a focus on the World Health Organization's goals for non-communicable diseases by 2020
- Global operational plan for prevention and control of non-communicable diseases in 2013-2020
- Strategy plan for prevention and control of non-communicable diseases in 2013-2017
- United strategy for non-communicable diseases in 2012-2015
- Study of "Global Burden of Diseases" (GBD); Infectious and Non-Infectious
- Introduction of relevant websites for infectious and non-infectious diseases
- Introduction of the national risk factor surveillance program for non-communicable diseases with regard to the following proposed axes: courses conducted in Iran, field guidelines, study design and sampling methodology guidelines, training guidelines for



executive and field staff, introduction of the national document for prevention and control of non-communicable diseases.

- Introduction and familiarization of students with ProMED-mail
- National and global challenges of managing infectious and non-infectious diseases
- Emergence and re-emergence of infectious diseases
- The role of governmental and international organizations in disease management
- Methods and concepts, the role of social factors
- Molecular typing
- Cluster analysis
- Epidemiological surveillance
- Investigation of epidemics
- Geographic Information System (GIS)
- Transmission patterns and mathematical models
- The role of individual and collective immunity
- Principles and applications of vaccinology
- Introduction of important websites related to infectious and non-infectious diseases in Iran and the world
- National guidelines for prevention, control and care of priority infectious and non-infectious diseases
- Critique of national guidelines for prevention, control and care of priority infectious and non-infectious diseases based on comparison with WHO guidelines for the same diseases

## References

- 1 Council of Authors under the supervision of Dr. Parvin Yavari: Reference of Epidemiology of Common Diseases of Iran: Volume One - Infectious Diseases Second Edition. Tehran, Gap Publications: 1399, 584
- 2 Council of Authors under the supervision of Dr. Parvin Yavari: Reference of Epidemiology of Common Diseases of Iran: Volume Two - Non-Communicable Diseases: Tehran, Gap Publications: 1393, 535 (Latest Edition)
3. Council of Authors under the supervision of Dr. Parvin Yavari: Reference of Epidemiology of Common Diseases of Iran: Volume Three - Cancers, Tehran, Gap Publications: 1400, 254 (Second Edition)
- 4 Siavashi Mohammadreza, Mostafavi Ehsan and Nouri Atafteh, Guide to Investigation and Response to Outbreaks of Infectious Diseases, Pasteur Institute of Iran: Center for Disease Management of the Ministry of Health, Treatment and Medical Education, 1393, 205
5. WHO website (<http://www.who.int>)

6. Website of the International Society for Infectious Diseases  
(<http://www.isid.org/promedmail/promedmail.shtml>)

VKrämer A. Kretzschmar, M. Krickeberg, K. (Editors). Modern Infectious Disease Epidemiology: Concepts, Methods, Mathematical Models, and Public Health, Springer New York Publisher. Bielefeld, 2010, 443. Translation by Hamid Sourì and Mohammad Hossein Panahi, Modern Epidemiology of Infectious Diseases: 1st Edition, Royan Pajouh Publications 1399, 358

### **Methods of Evaluation**

- Active participation in class: 20% of total score
- Preparation of a written report based on the management of a selected infectious and non-infectious disease important in Iran: 30% of total score
- Final exam: 50% of total score

## **Occupational Ergonomics**

**Prerequisite or Concurrent:** None

**Number of Credits:** 1 credit

**Course Code:** 38

**Course Type:** Theoretical

### **Aim**

Familiarity and increasing students' awareness of human capabilities and limitations, creating appropriate compatibility and interaction between work and user, applying principles and methods of ergonomics in the work environment with management and control of risk factors of ergonomics

### **Course Content: 17 Hours Theoretical**

1. Cognitive ergonomics
2. Methods of evaluating cognitive workload
3. Evaluation techniques and how to use methods and introduce methods of OCRA, REBA, RULA, OWAS, ROSA, QEC, ...

4. Ergonomics in different occupations (healthcare, administrative, agricultural, etc.)
5. Familiarity with methods of designing workstations
6. Management and ergonomic corrections of occupational posts (postures)
7. Job analysis
8. Familiarity with techniques for evaluating manual handling of loads
9. Macro ergonomics (ergonomics in organizational design and management, participatory ergonomics)
10. Work physiology
11. Shift work

## **References**

- 1- Introduction to ergonomics, S. Bridger, last edition
- 2- Introduction to Human Factors Engineering (Hardcover) by Christopher D. Wickens, last edition
- 3- Handbook of Human Factors and Ergonomics by Gavriel Salvendy, last edition

## **Methods of Evaluation**

- 70% final exam in descriptive form
- 30% group work during the term/semester

## **Sociology of Health and Social Determinants of Health**

**Prerequisite or Concurrent:** None

**Number of Units:** 1 credit

**Type of Unit:** Theoretical

**Course Code:** 11

## **Aim**

The main objective is to familiarize with the concepts and modern approaches of sociology in relation to health, individual, group, social and organizational, and to acquire the necessary skills to identify, analyze and document social behaviors. In this course, students will learn about the social foundations of health, the components and social and sociological factors affecting health and lifestyle, such as culture, literacy, access to services, justice and gender, and will acquire the ability to analyze social behavior. It is hoped that the learner will have acquired the following competencies at the end of the course:

- Explain the concepts and importance of justice in health
- Explain the philosophy, history, concepts and definitions of the social determinants of health approach and its relationship with justice in health

- Become familiar with the Commission on Social Determinants of Health of the World Health Organization and state its objectives
- Know the purpose of creating knowledge networks of the Commission on Social Determinants of Health, explain the results of their reports and recommendations, and provide suggestions and proposals for localizing them
- Describe and critique the experiences and activities of countries in the world and countries cooperating with the World Health Organization in the field of SDH
- Describe the major international programs (such as the Healthy City, Healthy Village and Millennium Development Goals) and national programs (with emphasis on the country's economic and social development programs) and describe the relationship of these programs with justice in health and the social determinants of health approach
- Identify inequalities in the health of individuals and communities and determine the social factors that create them through various methods such as data analysis and calculation of indicators
- Name the important social, economic indicators of health and indicators of justice in health
- State the principles of action to reduce injustice in health
- Describe the current situation of health inequalities in the country and examine and critique the policies, programs, interventions and national experiences from the perspective of justice in health
- Describe the interventions and actions aligned with the social determinants of health approach, including intersectoral collaboration and community participation in health in various sectors of the country.
- Suggest solutions for the entry of civil society institutions in the social determinants of health and justice in health approach.
- Based on global and national experiences, with examples, determine which organization of the government, civil society and regional level should include the improvement of the situation of each of the social factors in its program. It is suggested that the design of programs and interventions at various local, national, and regional levels be proposed with the participation and consideration of the role of all development stakeholders in improving the situation of influential social factors on health and monitoring and evaluating it.
- It is also expected that the learner becomes familiar with social health and its levels and components, the concept of social harm and its examples and definitions, as well as sociological theories and the role and importance of culture in health, social patterns of disease, the relationship between disease and social health, and healthy lifestyle.
- The theoretical framework and proposed models of the World Health Organization's Commission on Social Determinants of Health in this approach
- Social factors affecting health, definitions, and importance
- Poverty and its dimensions, the evolution of early childhood, the health care system, medical education, stress, mental health - English, social isolation and discrimination, gender, race, education, occupation, housing, lifestyle, traditions, culture and religion, urbanization, social environment, social network, social support, security, globalization,

war, sanctions and peace, human rights, justice in health, environment, community empowerment and participation, health policy

- The importance of access to evidence and knowledge in the field of social determinants of health and justice in health
- How to measure inequality such as concentration index and... Techniques for data analysis and interpretation, monitoring systems and indicators, inequality and injustice in the world and Iran
- Definitions of socio-economic status and deprivation, how it is classified in different countries and Iran, and related indicators
- Solutions and interventions to reduce injustice, monitoring and evaluating interventions
- The role of agencies and civil society organizations in the world and Iran in relation to the social determinants of health approach and their impact on health
- Capacities, interventions, and national programs in the direction of social determinants of health and justice in health
- Proposed national program for social determinants of health and justice in health.

## References

- PUBLIC HEALTH AND PREVENTION.15 ED Equity, social determinants and public health programmes. Edited by Erik Blas and Anand Sivasankara Kurup
- Armstrong, David, Medical Sociology, translated by Mohammad Tavakol, Legal Publications, Shahid Beheshti University of Medical Sciences.
- Mohseni, Manouchehr, "Medical Sociology". Tahoori Publications.
- David Wainwright. A Sociology of Health. SAGE publication.
- Kevin White. An Introduction to the Sociology of Health and Illness. SAGE publication.
- Anne-Marie Barry, Chris Yuill. Understanding the Sociology of Health: An Introduction. SAGE publication.
- Wilkinson, R. Maemot, M. social determinant of health: the solid fact.
- WHO Commission on Social Determinants of Health, Closing the gap in a generation: health equity through action on the social determinants of health, World Health Organization, [www.who.int/social-determinants](http://www.who.int/social-determinants)

## Methods of Evaluation

- Active attendance and participation in class: 10%
- Mid-term exam: 20%
- Final written exam: 70%

## **Health in Emergencies and Disasters**

**Prerequisite or Concurrent:** Principles of Epidemiology and Research Methods 02

**Number of Units:** 1 credit

**Unit Type:** Theoretical

**Course Code:** 14

### **Aim**

- Recognize the public health consequences of disasters
- Planning and related interventions in the four stages of disaster management in the health sector
- Familiarize learners with common concepts in disaster and emergency management with a focus on the health effects of natural and human disasters
- Construction, process, and management of them in the health system
- Risk assessment methods in health structures
- Recognize the functions of different levels of the health system in the stages of the disaster risk management cycle
- Reduce the risk of disasters and enhance resilience in the health system
- Recognize the process and structure of disaster management
- Psychosocial support in disasters
- Environmental health effects of disasters and their management
- Disease management in disasters and emergencies
- Nutrition in disasters and emergencies
- Human rights and international organizations in disaster management

### **Course Content: 17 Hours Theoretical**

#### **1. Generalities and Definitions:**

- The importance of disasters and emergencies in the world today
- Concepts (disaster, risk, vulnerability, capacity, risk assessment, resilience)
- Common classifications of disasters
- Different stages of the disaster risk management cycle

#### **2. Status of Common Hazards Occurring in the World, Region, and Iran and Their Health Consequences:**

- Databases related to disasters

- Criteria used in disasters
- The incidence of disasters in the world and Iran
- Health effects of disasters and their epidemiology

### **3. History, Laws, and Crisis Management Structure in the Country:**

- Crisis management laws in the country
- Crisis management structure in the country, provinces, and cities
- Crisis management structure in the health system
- Major crisis management policies

### **4. Risk Assessment, Risk Analysis, and Vulnerability in Emergencies and Disasters:**

- Concepts of risk, vulnerability, and capacity
- Concept and stages of risk assessment
- Methods and tools for assessing the risk of disasters in society
- Risk assessment of disasters in hospitals
- Tools for assessing the risk of disasters in health centers
- **Health system tasks in different stages of crisis management:**
- Emergency operations plan and its components
- Components of the health system emergency operations plan
- Management functions of the preparedness program
- Specific functions of the preparedness program
- Preparedness program functions
- **Reducing the risk of disasters and enhancing resilience to disasters in the health system:**
- Resilience in the health system
- Structural and non-structural preventive measures
- Monitoring of hazards and prediction and warning systems
- Training and its types
- Increasing capacity and its principles in health care systems
- Triage at the scene of the incident and in hospitals
- **Effective health system management and response to disasters and emergencies:**
- Features of the crisis management coordination center
- Functions of the crisis management coordination center
- Features of the command-and-control system for emergencies and disasters •  
Functions of the command-and-control system for emergencies and disasters
- **Recovery management in disasters and emergencies:**
- The importance of recovery and its types
- Reconstruction in disasters
- Psychosocial empowerment
- Psychological support for health system personnel

- **Common natural hazards in Iran:**
- The status of earthquakes in Iran and their health effects
- Floods and lessons learned from health system activities
- Climate change and strategies to deal with it in the Iranian health system
- **Common human-made hazards in the country and their health effects:**
- Transportation accidents and their status in the country
- Explosions and practical tips for managing them
- Large fires and practical tips for managing them
- Population management and practical tips for managing it
- Management structure for it in the country
- **People-centered disaster management:**
- Common approaches to disaster management in the world, their advantages and disadvantages
- Advantages and disadvantages of people-centered disaster management approach
- Principles, applications, and stages of people-centered disaster management
- **Psychological effects of disasters and psychosocial support**
- Common psychological problems in disasters
- Human response to disasters and the process of adaptation to them
- Key points in managing psychological problems in disasters
- Psychological and social support for victims • Healthcare workers and their psychosocial rehabilitation in disasters

### **13. Risk communication in disasters:**

- The role of risk communication in disasters
- Principles and foundations of risk communication
- Communication methods
- Tactics and techniques for communicating with the media during disasters

### **14. Environmental health effects of disasters and their management:**

- Environmental effects of disasters
- Providing clean water in disasters
- Waste management in disasters
- Sanitary disposal of sewage and feces
- Management of corpses

### **15. Disease management in disasters:**

- Common emerging and re-emerging diseases
- The country's syndromic care system for disease monitoring



- Lessons learned from COVID-19 management
- Common respiratory diseases in disasters
- Common gastrointestinal diseases in disasters
- Other common diseases in disasters
- Non-communicable diseases and their management

#### **16. Nutrition in disasters: • The importance of nutrition in disasters**

- Common nutritional diseases in disasters
- Food supply systems in disasters
- Nutritional needs in disasters

#### **17. Human rights and international organizations in disaster management:**

- Human rights principles and services
- Human rights legal foundations
- United Nations offices and their role in disaster management
- Management of international humanitarian aid and assistance

## **References**

1. Comprehensive lesson on health in disasters and emergencies
2. Ciotto GR, Biddinger PD, Darling RG, Fares S, Keim ME, Molloy MS, Suner S, editors. Ciotto's disaster medicine. Elsevier Health Sciences; 2015 Nov 5.
3. 7. Koenig KL, Schultz CH, editors. Koenig and Schultz's disaster medicine: comprehensive principles and practices. Cambridge University Press; 2010.
4. Edward B. Natural Disasters. New York. Cambridge university press. Last edition.
5. Collins LR. Disaster management and preparedness. CRC Press; 2000 Nov 22.
6. Alexander DE. Principles of emergency planning and management. Oxford University Press on Demand; 2002.
7. UNDP Disaster Management Training Program, An Overview of Disaster Management, 1992 12. International strategy for disaster reduction. Live with risk. United Nations. Geneva. 2004.
8. Asian disaster preparedness center. Community-based disaster risk management. Bangkok. 2006.
9. Waugh WL. Living with hazards, dealing with disasters: An introduction to emergency management: An introduction to emergency management. Routledge; 2015 Jun 3.
10. Alexander D. Natural disasters. Routledge; 2018 Oct 24.
11. Smith K. Environmental hazards: assessing risk and reducing disaster. Routledge; 2013 Jan 16. 17. World Health Organization & League of Red Cross Societies. (1989). Coping with natural disasters: the role of local health personnel and the community.

- World Health Organization. <https://apps.who.int/iris/handle/10665/39422>
12. Landesman LY. Public health management of disasters: The practice guide. American public health association; 2005.
  13. Noji EK. The public health consequences of disasters. Prehospital and disaster medicine. 2000 Dec;15(4):21-31.
  14. World Health Organization. Natural disasters: protecting the public's health. In Natural disasters: protecting the public's health 2000 (pp. 119-119).

**Student Evaluation Method:**

- Class participation and work: 20%
- Written exam: 30%
- Project: 50%

## **Internship**

**Prerequisites:** principles of Epidemiology and research methodology 02 **Number**

**of Units:** 2 Credits

**Lesson Code:** 16

**Unit Type:** Internship

### **Aim**

At the end of the course, the student is expected to acquaint theoretical and practical familiarity with the structure of the health service supply system and other sectors related to community health, and based on teamwork and answering the following four questions, find the necessary ability to understand the problems of society and prioritize them by conducting surveys and drafting and implementing a community-based research proposal and be able to develop an operational plan to solve a "priority problem" in a given society:

What are the most serious health problems in society?

Which problems provide the most benefits to society?

Which of the problems can be solved with the resources available to society?

What problems are the main concerns of people in society?

### **Course Content**

Theoretical presentation of materials (in the form of a justification workshop) to familiarize students with local community assessment and diagnosis of problems in the community and the preparation of an operational plan introduction of the course and presentation of sample reports of assessments carried out in Iran and the world, familiarity with the service supply system, local community assessment method, method of determining community problems, method of prioritizing problems found in community assessment by introducing methods of Nominal Group Technique (Hanlon) and Hanlon (Hanlon)

### **Practical Content in the Field Group Work**

Forming a community assessment team (focusing on four students), identifying the executive-educational field (a given community) in coordination with health workers and grassroots-local authorities, compiling primary data, compiling secondary data, compiling and analyzing primary and secondary data, compiling a list of community problems and prioritizing them together with health workers, people and local authorities, selecting a priority problem from among the list of problems agreed by the people, drafting a proposal to identify the dimensions of the priority problem in the community (determining the prevalence of the problem and the factors affecting it), implementing proposal drafted to determine the burden of the problem and the factors affecting it in the community, write a

document on the evaluation of the health of the community on the basis of the results of the implementation of the proposal, the development of an operational plan (intervention version to solve or reduce the burden of the problem with priority in the same community), the follow-up and coordination for the implementation of the operational plan and the presentation of the community health assessment report in oral and written presentations

## References

1. North Carolina Division of Public Health, (DPH). 2015. (n.d.) In Community Health Assessment Guide Book. Retrieved from [https://www.nc.gov/advanced-search?s=COMMUNITY+HALTH+ASSESSMENT&form\\_build\\_id=form-0K-x2lxiepYXs92naKyktsPpmVCWj3U59MNFCT2SeEU&form\\_id=nc\\_search\\_block\\_form#gsc.tab=0&gsc.q=COMMUNITY%20HALTH%20ASSESSMENT&gsc.page=1](https://www.nc.gov/advanced-search?s=COMMUNITY+HALTH+ASSESSMENT&form_build_id=form-0K-x2lxiepYXs92naKyktsPpmVCWj3U59MNFCT2SeEU&form_id=nc_search_block_form#gsc.tab=0&gsc.q=COMMUNITY%20HALTH%20ASSESSMENT&gsc.page=1)
- 2 . Korosh Holakoie Naini and Jalal Karimi, guide to the evaluation of society, Isfahan, resident publication: 223,2017
3. Ministry of health, treatment and medical education needs assessment guidelines

## Methods of Evaluation

- Active participation in the workshop: 60% total score
- Written report of the internship: 20% of the total score
- Verbal internship report: 20% total score

## Contact Information

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<http://en.tums.ac.ir/en/content/417/master-of-public-health-mph->

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