UANL
UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN

FACULTAD DE MEDICINA

MODULE DESCRIPTION (ANALYTICAL PROGRAM).

1. Module Information Code	
• Name of the Institution and School	Universidad Autónoma de Nuevo León, School of Medicine.
• Name of the Learning Unit	Epidemiology and Public Health
• Total classroom hours for theory and/or practice.	79 hours
• Total extra classroom hours	161 hours
• Course Modality	Schooled
• Type of academic period in which the module is offered	8th Semester
• Type of Learning Unit in the Curriculum	Compulsory
• Curriculum area:	ACFP-I
• UANL credit points	8
• Date of module creation:	September 20, 2014
• Date of last amendment:	January 14, 2021
• Person(s) responsible for the module design and amendments:	Dr. Raúl Gabino Salazar Montalvo Dr. José H. Fabela Rodríguez Dra. Hilda Cristina Ochoa Bayona Dra. Graciela Irma Martínez Tamez Dra. Adriana Perla López Cárdenas Dra. Lidia Mendoza Flores

2. Introduction:

This learning unit contributes to develop the necessary competences to analyze the trend and the control of events related to health in a population, through its description, the determination of its variation, the establishment of relations between the processes that affect it; and it is structured in 3 stages:

Stage I.- Basis of Public Health and Epidemiology

Stage II - Epidemiological Surveillance

Stage III - Epidemiological analysis of health problems in the population

In the first stage we will review the relationship with other subjects in the curriculum, as well as the most frequently used terminology in Public Health and Epidemiology. Research study designs will be covered, as well as the elaboration of the Health Diagnosis; in the second stage, the risk methodology will be implemented, as well as the bases for the Epidemiological Surveillance of communicable and noncommunicable diseases; and finally, in the third stage, the application of prevention and control measures will be implemented through the resolution of problem cases.

3. Purpose(s)

The purpose of the learning unit of Public Health and Epidemiology is to analyze the current health situation, the main diseases at a national and international level, as well as to identify and use the prevention-control measures that apply to the different health problems, this at a community and hospital level.

It contributes to achieving the profile of graduation in the domains corresponding to Communication and Critical Thinking and Research, by developing the necessary skills to analyze the trend and control of events related to health and disease in a population, through its description, the determination of its variation, the establishment of relationships between the processes that affect it, as well as prevention and control actions. It is related to the Learning Units of Preventive Medicine, Biostatistics, Research Methodology in Health Sciences, Microbiology, Propaedeutics, Clinical Pathology, Medical Sciences, Family Medicine, Pediatrics and Gynecology and Obstetrics.

4. Competences of the graduate profile

a. General competences contributing to this learning unit.

Instrumental skills:

1. Apply autonomous learning strategies in the different levels and fields of knowledge that allow them make appropriate and relevant decisions in the personal, academic and professional fields.

3. Use the information and communication technologies as access tools to information and its transformation in knowledge, as well as for learning and collaborative work with cutting-edge techniques that allow its constructive participation in society.

8. Use methods and techniques of traditional and cutting-edge research for the development of their academic work, the practice of their profession and the generation of knowledge.

Personal and social interaction skills

10. Intervene in front of the challenges of contemporary society at the local and global level with a critical attitude and human, academic and professional commitment to help consolidate the general wellness and sustainable development.

11. Practice the values promoted by the UANL: truth, equality, honesty, liberty, solidarity, respect for life and anyone's, peace, respect for nature, integrity, ethics behavior and justice, within their personal and professional environment in order to make a sustainable society.

Integrative skills

12. Make innovative proposals based on the holistic understanding of reality to help overcome the challenges of the interdependent global environment.

b. Specific competences of the graduate profile that contributes to the learning unit
Scientific Basis of Medicine

1.- Use the medicine scientific fundaments considering economical, psychological, social, cultural and environmental factors which contribute to the development and evolution of a disease for decision-making and medical actions.

Professional Clinical Practice

2.- Solves clinical problems through deductive reasoning, interpretation of findings and definition of their nature with the aim of making decisions and determine action principles of the medical practice to follow in a responsible way, impacting individual and collective health.

3.- Evaluate the development and evolution of the disease through the analysis of biomedical information and related physical, social and cultural factors, promoting health education and encouraging preventive medicine.

4.- Manages properly patients with the most frequent diseases from a biopsychosocial perspective, through the application of knowledge, technical procedures and basic diagnostic, based on clinical guides and attention protocols in order to solve the main health problems from the Primary Health Care level from individuals and the community.

Critical Thinking and Research

7.- Applies the scientific method for the resolution of medical problems with an innovative, analytic and self-critical attitude for preventing, diagnosing and treating diseases.

Professional Values and Ethics

9.- Respects the patient's integrity keeping the patient's medical information as an essential part of their professional secret in order to preserve his rights.

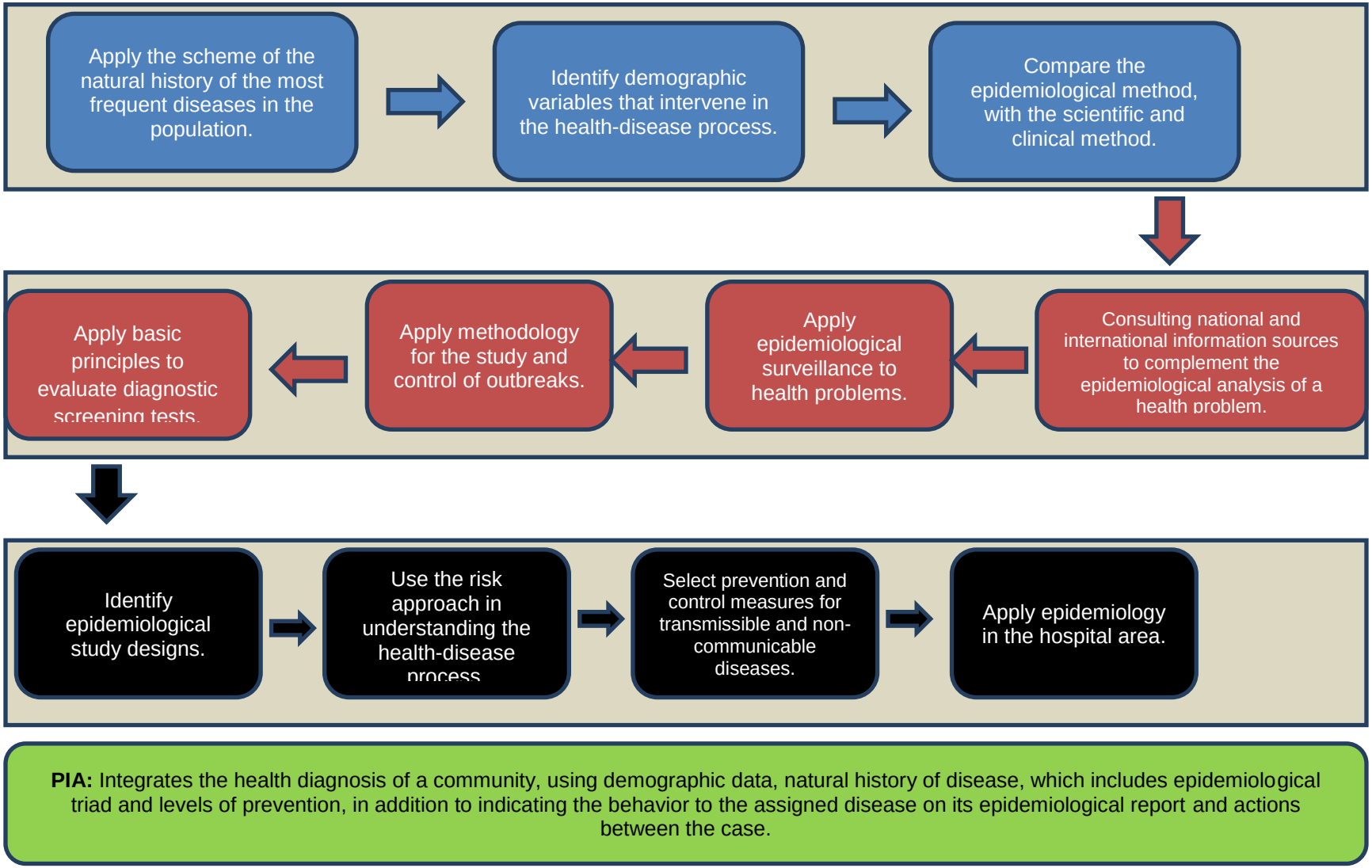
Organizational Work

10.- Promotes an organizational work culture for the health field, acknowledging the multidisciplinary work, respect for institutional policies and the observance of rules in order to contribute to a comprehensive treatment of patients.

Communication

11.- Applies effective communication principles, establishing a respectful and sympathetic relationship with the patient, relatives, the community and other health professionals in order to use the information properly.

5. Course Roadmap:



PIA: Integrates the health diagnosis of a community, using demographic data, natural history of disease, which includes epidemiological triad and levels of prevention, in addition to indicating the behavior to the assigned disease on its epidemiological report and actions between the case.

6. Structuring into stages or phases

Stage 1: Bases of Public Health and Epidemiology

Component(s) of the competence:

Analyze the foundations of public health and epidemiology in the attention of the health-disease process in the construction of the Natural History of the disease in order to apply the epidemiological method anticipated to the damage.

Evidence of student learning	Performance Criteria	Learning activities	Content	Resources
1.- Outline of Marc Lalonde's concept that contains the health of people including various definitions of the concept of Public Health. Summarizes the basic functions of Public Health.	• Describes Mark Lalonde's health scheme and relates it to various public health concepts. • Identifies the percentages of health determinants according to Mark Lalonde's scheme. • Identifies and interprets the basic	• The student in class exposes the concept of Public Health and relates it to Mark Lalonde's concept of health. • Includes a glossary of terms used in Public Health and Epidemiology as well as their fields of application. The student exhibits in teams:	**Conceptual** • Basic terminology of Public Health and Epidemiology. • Relationship of Public Health and Epidemiology within the curriculum of the Medical program. • Demographics and Public Health. • Populations and housing census.	• Classroom • Multimedia Projector • Computer equipment • Textbooks • Power Point Presentation • Population and Housing Census • Workbook • Inpatient rooms • Consultation room N° 23

2.-Poster that includes health indicators based on a table of demographic parameters.	functions of public health. The poster includes the following: • Table with indicators of static demography. • Table with indicators of dynamic demography. • Interprets demographic health indicators. • Rates of birth, death, life expectancy, age, gender, occupation, etc. The poster should be made:	• Defines the application of demographics as a public health tool. • Identifies and applies indicators of: birth rate, mortality, life expectancy, age, gender, occupation, morbidity. • Elaborates hypothetical population pyramids, with data provided by the facilitator. • Construct the health indicators of a community according to the methodology of the Population and Housing Census. The facilitator guides the discussion at the end of the class and intervenes by making pertinent comments	• National Health Survey. • Health Indicators. **Procedural** • Management of terms related to epidemiology. • Links epidemiology with public health. • Interpretation of demographics indicators. • Interpretation of vital statistics. **Attitudinal** • Respect to diversity of opinions. • Objectivity in handling information.	

	Letter size sheet, letter Arial 12. All information sources and graphics will be documented and in the desired format: • Cover with characteristics of title, name, group, registration and name of theory teacher. • The information is complete and organized in an appropriate way. • No spelling or punctuation errors.	during the student's presentation. Elaboration of population pyramids in a workbook.	• Willingness to wor collaboratively, responsability and leadership. • Commitment to academic work. • Responsability in hospital practice. • Attention to the dress codein a hospital context.	

Stage 2: Epidemiological Surveillance

Component(s) of the competence:

Understand Epidemiological Surveillance through the analysis of health problem behavior to implement actions for the control of transmissible diseases, understand the usefulness of diagnostic screening tests.

Evidence of student learning	Performance Criteria	Learning activities	Content	Resources
3.- Scheme to implement an Epidemiological Surveillance System (activities and elements) in accordance with the regulations of the Health Sector.	The scheme includes the following actions: • Implement health diagnosis of a community. • Build an epidemiological surveillance model for a specific disease. • Fill out a case study format for a specific disease. • Fills out a death certificate.	The student exposes in team: • Elements for the Health Diagnosis of a community. • Identifies sources of information and their use. • Defines and performs an epidemiological case study as an element of the Epidemiological Surveillance System and uses the endemic channel as a control tool. • Analyzes and resolves a death certificate within the Epidemiological Surveillance.	**Conceptual** • Epidemiological Surveillance • Sources of national and international health information. • Health Diagnosis of a community. • Diagnostic and Screening Tests. **Procedural Content** • Determination of notifiable diseases.	• Classroom • Multimedia Projector • Computer equipment • Texts • Power Point Presentations • NOM 017 2002 Epidemiological Surveillance

4.- Resolution of exercises designated by the professor to determine the Sensitivity, Specificity, Positive Predictive Value and Negative Predictive Value of the screening tests.	The scheme must be made in letter size sheet. All information sources are documented and in the desired format. Cover with characteristics of title, name, group, registration and name of theory teacher. The resolution of exercises includes the following: • Principles for evaluating diagnostic tests. • Significance of specificity. • Significance of sensitivity.	The professor guides the discussion at the end of the class and intervenes by making pertinent comments during the student's presentation. Resolves exercises on death certificate, case definitions of diseases included in the workbook. Application of the formulas to obtain the sensitivity, specificity, positive predictive value, negative predictive value of a screening test.	• Filling out of epidemiological case forms. • Filling out death certificate forms for epidemiological purposes. • Specfic INEGI statistics queries. • Application of formulas for the resolution of sensitivity, specificity, positive predictive value of a diagnostic test. **Attitudinal** • Willingness to teamwork • Respect for the others ideas. • Responsability in the hospital practice	

	• Significance of predictive value. • Significance of positive plausibility. • Significance of negative plausibility. Exercises must be submitted: • On time. • No spelling errors • In letter size sheet that includes: Cover with characteristics of title, name, group, registration and name of theory teacher.	Selecting the most appropriate screening test for various diseases. Solve the exercises to obtain the sensitivity, specificity, positive and negative predictive values in the workbook.	• Attention to dress code in hospital context.	

Stage 3: Epidemiological analysis of health problems in the population.

Component(s) of the competence:

Analyze health problems both in the community and in a hospital, based on the foundations of Public Health and Epidemiology for the integral attention of transmissible and non-transmissible diseases in order to implement actions for prevention and control.

Evidence of student learning	Performance criteria	Learning activities	Content	Resources
5.-Written report on the resolution of epidemiological situations with risk measurement and prevention measures for the control of diseases assigned by the professor.	• Design the epidemiological study according to the assignment. • Applies basic measures used in epidemiology to analyze health problems. • Uses the risk approach in the understanding of the health-disease process.	• Reviews the epidemiological studies according to the purpose of the study: its temporality, the control of the factors under study (Analytical, Descriptive, Prospective, Retrospective, Intervention, Observational, etc.) • Calculates and interprets the risk using the measures of frequency, association and impact of the diseases.	**Conceptual** • Epidemiological study designs. • Basic measures of risk in epidemiology. • Prevention and control measures for vaccinable-preventable disease. • Prevention and control measures for infectious diseases for the respiratory system. • Prevention and Control measures for infectious	• Classroom • Multimedia Projector • Computer equipment • Texts • Power Point Presentation

	• Implements prevention and control measures for vaccine-preventable diseases, infectious diseases of the respiratory system and parasitic infectious diseases of the digestive system. The report must be made: • Letter size sheet. • All information sources and graphics are documented and in the desired format. • Cover with characteristics of title, name, group, registration and name of theory teacher. • Letter Arial 12, space 1.5	• Calculates and interprets the Risk. • Interprets epidemiological indicators, and applies prevention and control measures for vaccine-preventable diseases (Measles, Rubella, Tetanus, Neonatal Tetanus, Poliomyelitis, Viral Hepatitis B, Influenza, Mumps, Pertussis, Rotavirus, Hepatitis A, Haemophilus influenza type B, Chickenpox). • Interprets epidemiological indicators, and applies prevention and control measures for infectious diseases of the respiratory system (pulmonary tuberculosis, pneumococcal pneumonia, streptococcal	and parasitic diseases of the digestive system. • Prevention and Control measures for sexually transmitted diseases. • Prevention and Control measures for vector-borne diseases. • Prevention and Control measures for other comunicable diseases (Hepatitis C, toxoplasmosis, trichinosis). • Prevention and Control measures for Zoonotic diseases. • Prevention and Control measures for noncommunicable diseases (Diabetes, High Blood Pressure,	

	• The information is complete and organized without spelling or punctuation errors, containing an introduction, theoretical development and finally conclusions.	pharyngo-tonsillitis, coccidioidomycosis, histoplasmosis). • Interprets the epidemiological indicators, and applies the prevention and control measures for infectious and parasitic diseases of the digestive system (Typhoid fever, Oxyuriasis, Amebiasis, Cholera, Ascariasis, Giardiasis, Tennis and cysticercosis).	Breast cancer and cervical cancer) • Infections associated with health care. • Pneumonias. • Urinary tract Infections. • Surgical wound infection. • Catheter-related infections **Procedural** - Application of formulas to determine frequency and association measurments. • Application of prevention measures for sexually transmitted diseases, vector transmitted diseases, zoonotic and chronic degenerative.	

			• Application of epidemiological concepts to hospital care according to the standadrized procedures manual for hospital epidemiological surveillance. **Attitudinal** • Willingness to teamwork • Respect for the others ideas. • Responsability in the hospital practice Attention to dress code in hospital context.	

6.- Scheme of natural history of the disease (assigned by the professor), where he/she uses epidemiological concepts and terms.	Includes the aspects corresponding to the natural history of the disease: • Epidemiological Triad. • Primary prevention • Health Promotion • Specific protection • Secondary prevention • Early Diagnosis • Timely treatment • Tertiary prevention • Damage limitation • Rehabilitation • Defines the terms case, probable case, suspected case, confirmed case of the disease you describe. • Defines the incubation period, transmissibility and determines the quarantine and/or isolation time.	Explains the elements of the Natural History Scheme, with its clinical horizon, pre-pathogenic and pathogenic periods, as well as its prevention levels, primary, secondary and tertiary. • The facilitator facilitates the discussion in plenary session to generate conclusions. • Question and answer session. • Resolves natural history of disease exercises in workbook.	**Conceptual** • Leavell and Clark Natural History Outline. **Procedural** • Apply the Leavell and Clark scheme. **Attitudinal** • Respect for the diversity of opinions. • Objectivity in handling information. • Willingness to work collaboratively, responsibility and leadrship.	

	The scheme should be done: • Letter size sheet, Arial 12 font, space 1.5. • Information sources should be documented and in the desired format. • Cover with characteristics of: title, name, group, registration and name of theory teacher. • The information is complete and organized in an appropriate way. • It does not present spelling or punctuation errors.			

7.-Documentary research on the effectiveness of prevention and control measures for vaccine-preventable diseases, sexually transmitted diseases, vector-borne diseases, zoonotic diseases and chronic degenerative diseases.	The research includes the implementation of: • Prevention and Control measures for sexually transmitted diseases. • Prevention and control measures for vector-borne diseases. • Prevention and Control Measures for Zoonotic diseases (rabies, brucellosis). • Prevention and Control measures for non-transmissible diseases (cervical cancer, breast cancer, diabetes mellitus and high blood pressure).	Resolve the risk exercises in the work manual. • Interprets epidemiological indicators, and applies prevention and control measures for sexually transmitted diseases (Syphilis, Congenital Syphilis, Gonorrhea, HIV, Genital Candidiasis, Trichomonas, Genital Herpes.) • Interprets epidemiological indicators, and applies prevention and control measures for vector-borne diseases (Dengue, Hemorrhagic Dengue, Malaria, West Nile Fever, etc.) • Interprets the epidemiological	• Prevention and control measures for vaccinable-preventable disease. • Prevention and control measures for infectious diseases for the respiratory system. • Prevention and Control measures for infectious and parasitic diseases of the digestive system. • Prevention and Control measures for sexually transmitted diseases. • Prevention and Control measures for vector-borne diseases. • Prevention and Control measures for other comunicable diseases (Hepatitis C,	

	The document should contain a cover with general data, introduction, the APA style reference, from magazines or textbooks no older than 10 years, in 12-point Arial font, with 1 ½ space, without spelling and punctuation errors.	indicators and applies the prevention and control measures for other transmissible diseases (Viral Hepatitis C, Toxoplasmosis, Trichinosis.) • Interprets epidemiological indicators and applies prevention and control measures for Zoonotic diseases (Rabies, Brucellosis, Toxoplasmosis.) • Identifies prevention and control actions for chronic degenerative diseases (Diabetes mellitus, Hypertension) and neoplastic diseases (Cervical-Uterine Cancer and Breast Cancer). The facilitator comments on the student's presentation	toxoplasmosis, trichinosis). • Prevention and Control measures for Zoonotic diseases. • Prevention and Control measures for noncommunicable diseases (Diabetes, High Blood Pressure, Breast cancer and cervical cancer)	

		and generates the group discussion by exemplifying everyday situations so that the group can define how to deal with the situation.		
8.- Documentary research on the effectiveness of prevention and control measures for infections associated with in-hospital health care.	Documentary research on the assigned infection includes: • Explains the infection associated with health care. • Uses criteria to establish when a healthcare-associated infection occurs. • Implements prevention measures for healthcare-associated infections.	• Defines and uses the term Health Care Associated Infection. • Will identify, describe, and apply prevention and control measures for the most common healthcare-associated infections in hospitals (Pneumonia, Urinary Tract Infection, Bacteremias, Surgical Wound Infection).	**Conceptual** • Health care-associated infections. • Pneumonia. • Urinary tract infections • Surgical wound infections. • Catheter-related infections **Procedural** - Application of formulas to determine frequency and association measurments.	

	The document should contain the APA-style reference from journals or textbooks not more than 10 years old, in 12-point font, with 1 ½ space, without spelling or punctuation errors.		• Application of epidemiological concepts to hospital care according to the standadrized procedures manual for hospital epidemiological surveillance. **Attitudinal** • Willingness to teamwork • Respect for the others ideas. • Responsability in the hospital practice Attention to dress code in hospital context.	

7. **Summative Evaluation**

STAGE 1. 6%	Points
1.- Mark Lalonde's schema and natural history of the disease (assigned by the professor), where he uses epidemiological concepts and terms.	3
2.- Poster with health indicators based on a table of demographic parameters.	3
STAGE 2. 5%	
3.- Scheme to implement an Epidemiological Surveillance System (activities and elements) in accordance with Health Sector regulations.	3
4.- Resolution of exercises designated by the professor to determine the Sensitivity, Specificity, Positive Predictive Value and Negative Predictive Value of screening tests.	2
STAGE 3. 11%	
5.- Written report about the application and analysis of Epidemiological Studies in the resolution of epidemiological situations. Risk measurement to a health problem and its prevention and control measures through problem solving, the effectiveness of Prevention and Control Measures for Sexually Transmitted Diseases, vector-borne diseases and other transmissible diseases, Zoonotic Diseases, Chronic degenerative diseases.	4
6.- Documentary research on the effectiveness of Prevention and Control Measures for Sexually Transmitted Diseases, vector-borne diseases, zoonotic diseases, chronic degenerative diseases.	3
7.- Documentary research on the effectiveness of prevention and control measures for infections associated with in-hospital health care.	4
Resolution of workbook exercises. **5%**	5
Epidemiological Surveillance in the Hospital (Ailments of epidemiological interest). **13%**	13
First Partial **15%**	15
Second Partial **15%**	15
Final Exam **20%**	20

Course Integrative Product (CIP). **10%**	10
TOTAL	100

8. **Course Integrative Product:**

Integrates the diagnosis of health of a community, using demographic data, natural history of disease, which includes epidemiological triad and levels of prevention, in addition to indicating the behavior to the disease assigned on its epidemiological report and actions between the case.

9. Resources

- **Textbook**

Manual de Salud Pública y Epidemiología. Quinta Edición. Departamento de Medicina Preventiva y Salud Pública. 2015 Imprenta Universitaria

- **Reference books**

Alvarez-Kuri Morales (2013) Salud Pública y Medicina Preventiva. 4 ed. Manual moderno Cap. 4 pp. 25-33, México.
El Control de Enfermedades Transmisibles Organización Panamericana de la Salud. 19 ª Edición. 2011
Tapia Conyer R, (2006) Manual de Salud Pública. Segunda Edición. Intersistemas, México.
Villa Romero A, Moreno Altamirano L, García de la Torre G, (2012) Epidemiología y estadística en salud Pública, Mc. Graw Hill, México.
Gordis León, (2009) Epidemiología 3ª edición, Elsevier Saunders, España

- **Magazine Articles**

Instructivo para el llenado del Certificado de Defunción Secretaria de Salud.
Moreno Altamirano. 2000/Jul/04, Principales Medidas en Epidemiología, Revista de Salud Pública de México. Vol. 42 No. 04.pag 337-348

- **Electronic resources**

http://www.ssa.gob.mx. Programa Nacional de Salud

http://www.inegi.org.mx Censos de Población

http://www.dgepi.gob.mxPrincipales causas de morbilidad y mortalidad en México y Nuevo León. dgepi.gob.mx

http://www.salud.gob.mx/unidades/cdi/nomssa.html

http://www.who.int.comOrganización Mundial de la Salud.

http://www.cdc.gov.com Centro de Enfermedades transmisibles.

http://www.cenaprese.salud.gob.mxCentro Nacional de programas preventivos y control de Enfermedades (CENAPRESE)

APPENDIX.

ASSESSMENT AND WORKLOAD

Module workload		Number of hours	Percentage
Contact hours	Class-based instruction	59h (74.68%)	32.91%= 79 hours
	Written work	8h (10.12%)	
	Epidemiological Surveillance in the Hospital (Ailments of epidemiological interest)	8h (10.12%)	
	Exam taking	3h (3.79%)	
	Course integrative product (CIP)	1h (1.26%)	
Independent study	Study	103h (63.97%)	67.08%= 161 hours
	Exam preparation	58h (36.02%)	
Total hours of the workload: 30 hours X 8 credits UANL/ECTS*		240 h	

*European Credit Transfer and Accumulation System
1 UANL credit = 30 hours

NOTE: Rubrics, checklists and evaluation formats are elaborated by using the performance criteria described in each stage of the module.

SUPLEMENTO COVID-19

Siguiendo las recomendaciones de la Secretaría de Salud del país y la Rectoría de la Universidad, ante la coyuntura de salud COVID-19, la organización de la docencia desde marzo del 2020, seguirá un modelo híbrido, donde la docencia se ajustará a los horarios aprobados por la Secretaría de Salud siguiendo un modelo de Presencialidad / No presencialidad en la medida en que las circunstancias sanitarias y la normativa lo permitan. Los estudiantes asistirán a las clases de manera no presencial mediante la transmisión de las mismas de manera síncrona/asíncrona vía “on line”.