

SYNTHETIC PROGRAM

Name of the institution:	Universidad Autónoma de Nuevo León
Name of the school:	Faculty of Medicine
Name of the degree program:	Clinical Chemistry
Name of the course (learning unit):	Diagnostic Medical Microbiology
Total number of class hours-theory and practice:	120
Class hours per week:	4 hours
Independent study:	40
Course modality:	Schooled
Module level:	Seventh semester
Core/elective module:	Core
Curricular area:	ACFP-I
UANL credits points:	4
Create date:	17/04/2018
Date of last amendment made:	28/06/2024
Person(s) responsible for the design and amendment of the module:	Dr. C. Néstor Casillas Vega

1. Purpose:

The purpose of this LU is to contribute to achieving the profile of the graduate in what corresponds to microbiological analysis in clinical specimens by developing the necessary skills to analyze, select, and execute antibiotic identification and susceptibility tests, collaborating with medical personnel for the prevention, diagnosis, and treatment of infectious diseases in various anatomical systems.

The LU collaborates with the achievement of three general competencies by using traditional and cutting-edge research methods and techniques to diagnose microorganisms associated with different human pathologies and generate new knowledge. It empowers graduates to practice different values, such as professional ethics and responsibility in their personal and professional sphere, complying with laboratory rules, and respect for their class. Likewise, this unit helps resolve personal and social conflicts according to the different diagnostic tests applied to microbiology in the health sector.

In this LU, specific competencies will be acquired in the graduate's profile, such as executing microbiological procedures in collecting, handling, storing, and analyzing samples to contribute to a reliable clinical diagnosis. Incorporate new methodologies that contribute to the functional improvement of processes in the clinical laboratory to respond to needs in the health area and interpret the results of the tests based on the established standards, protocols, and criteria that allow timely and relevant decision-making in microbiological diagnosis.

The LU of Diagnostic Medical Microbiology is taught in the seventh semester of the Educational Program of the Bachelor's Degree in Clinical Chemistry and Biology and is related to the subjects of Basic Microbiology, Medical Parasitology, Mycology and Virology, Medical Bacteriology and Immunology, integrating knowledge regarding the morphology, physiology, forms of transmission, immune response and epidemiology of microorganisms to support the appropriate bio-analytical methods that allow the identification of the etiological agent in the different samples to be analyzed. The learning units of more advanced semesters are related to clinical pathology and professional practice by analyzing various clinical cases where laboratory tests are used in this area based on their sensitivity, specificity, and cost-benefit.

2. Competencies of the graduate profile:

General competencies to which the module (learning unit) contributes:

- *Instrumental competences:*
 - 8. To use traditional and cutting-edge research methods and techniques for the development of their academic work, the exercise of their profession and the generation of knowledge.
- *Personal and social interaction skills:*

11. To practice the values promoted by the UANL: truth, equity, honesty, freedom, solidarity, respect for life and others, peace, respect for nature, integrity, ethical behavior and justice, in their personal and professional environment to contribute to building a sustainable society.
- *Integrative competencies:*
14. To resolve personal and social conflicts, in accordance with specific techniques in the academic field and in their profession for appropriate decision-making.

Specific competencies of the graduate profile to which the learning unit contributes:

2. To execute physical, chemical and/or biological procedures in the collection, handling, storage and analysis of samples to contribute to a reliable clinical, toxicological, chemical, food, forensic and environmental diagnosis.
5. To incorporate new analytical methodology that contributes to the functional, economic and/or environmental improvement of laboratory processes to respond to needs in health areas.
6. To interpret the results of analyses based on established criteria that allow timely and pertinent decision-making in clinical, toxicological, chemical, food, forensic, and environmental diagnosis.

3. Factors to consider for evaluating the learning unit:

- Oral and written presentation of topics assigned by the profesor
- Daily evidencias.
- Laboratory reports.
- Parcial exams.
- Course integrative project/product

4. Course integrative project/product

Written report of the solution of clinical cases associated with different etiological agents.

5. References:

- **Casillas-Vega, N. (2020). "Procedures of Diagnostic Medical Microbiology". McGraw Hill.**
- CDC, A. W. (2020). Centers for disease control and prevention.
- Clinical Microbiology Procedures Handbook. American Society for Microbiology.
- Green, L. H., & Goldman, E. (Eds.). (2021). *Practical handbook of microbiology*. CRC press.
- Mahon, C. R., & Lehman, D. C. (2022). *Textbook of Diagnostic Microbiology-E-Book: Textbook of Diagnostic Microbiology-E-Book*. Elsevier Health Sciences.
- Murray, P. R. (2024). Murray. Basic Medical Microbiology: Fundamentals and Clinical Cases. Elsevier Health Sciences.
- World Health Organization. (2006). *Manual of Biosafety in the Laboratory*. World Health Organization.
- Procedures in Clinical Microbiology. Recommendations of the Spanish Society of Infectious Diseases and Clinical Microbiology.
- Riedel, S., Morse, S. A., Mietzner, T. A., & Miller, S. (2022). Medical Microbiology by Jawetz, Melnick & Adelberg-28. McGraw Hill.
- Rosales-Castillo, A., Hidalgo, J., & Tenorio, C. (2020). Infectious Diseases and Clinical Microbiology. *Enferm Infecc Microbiol Clin*, 20200(38), 5.
- Sánchez, J. E. G., Centelles, M. L. G. L., López, F. C. R., & Gil, A. T. (2006). Procedures in clinical microbiology. *Recommendations of the Spanish Society of Infectious Diseases and Clinical Microbiology*.
<https://seimc.org/contenidos/documentoscientificos/procedimientosmicrobiologia/seimc-procedimientomicrobiologia1.pdf>

Free to use resources:

- Official Mexican Standard NOM-007-SSA3-2011. <http://www.salud.gob.mx/cdi/nom/compi/NOM-007-SSA3-2011.pdf>
- Official Mexican Standard NOM-087-ECOL-SSA1-2002. <http://www.salud.gob.mx/unidades/cdi/nom/087ecolssa.html>
- Pan American Health Organization. www.paho.org/ -
- World Health Organization – www.who.int/