



UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN
SCHOOL OF MEDICINE
Ba CLINICAL CHEMISTRY



SYNTHETIC PROGRAM.

1. Identification data:	
• Institution	Universidad Autónoma de Nuevo León
• College	School of Medicine
• Education program	Clinical Chemistry
• Learning unit	General exit examination course
• Total hours of classroom, theory and practice	72
• Frequency in classroom per week	4 hours
• Total extra hours (Outside classroom)	18
• Modality	Face-to-face instruction
• Academic period	Ninth semester
• Type of learning unit	Core
• Curricular area	ACFP-I
• UANL Credits	3
• Date of elaboration	04/06/2018
• Date of actualization	29/08/2022
• Responsible (s) for the design and actualization	Dr. E. Jorge M. Llaca Díaz, Dra. E. Diana G. Robles Espino, Dra. Sonia Lozano Quintanilla

2.Purpose(s):

The purpose of this learning unit is to contribute to the training of students for the General Examination for Graduation in Clinical Chemistry, which evaluates the specific knowledge and skills required for the professional activities of a Clinical Chemist. This integrates the knowledge acquired during the degree in areas such as laboratory diagnosis, clinical analysis, and laboratory management.

This learning unit supports the achievement of three general competencies by preparing students for the selection and use of research methods and techniques necessary for the relevant development of the professional activities of a Clinical Chemist. As students prepare for their personal progress and the challenge of facing the General Examination for Graduation in Clinical Chemistry, they do so with professional ethics, fairness, and responsibility. Additionally, they demonstrate the ability to empathize with others in resolving personal conflicts and working as a team.

Regarding the fulfillment of the specific competencies of the degree, the learning unit integrates all areas related to Clinical Chemistry, enabling students to acquire each competency through problem-solving by applying knowledge of the chemistry of matter and its properties to determine the analytes of interest in biological samples. It adheres to official Mexican and international regulations to ensure the proper use and disposal of chemical and biological materials. Moreover, it involves interpreting analysis results based on established criteria to make decisions and perform timely diagnoses.

The General exit examination course is offered in the ninth semester of the educational program for Clinical Chemist and is fully aligned with the content of other learning units in the clinical area taught in previous semesters, such as Hematology, Diagnostic medical microbiology, Clinical biochemistry, Blood bank, Immunology, Molecular biology, and Management and quality in the clinical laboratory. The achievement of competencies in the previous learning units provides the foundation for the professional development of the Clinical Chemist.

3. Competence of the graduate profile

- **General skills contributing to this learning unit**

Instrumental skills:

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 skills:

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 skills of the graduate profile that contributes to the learning unit**

1. To solve problems by applying knowledge of the chemical composition of matter as well as its physicochemical properties to determine analytes in biological, environmental and food matrices.
3. To handle chemical and biological materials following official Mexican and/or international standards that guarantee their correct use and disposal to preserve health and the environment
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.

4. Factors to consider for evaluating the learning unit

- Written evaluations
- Weighted activities
- Course integrative project/product

5. Integrative learning Product:

Written report about a clinical case study assigned by the professor. In this report, he will provide an adequate methodological and conceptual strategy that will let him differentiate groups of microorganisms that are causing an illness.

6. Sources of support and consultation (bibliography, hemerography, electronic sources):

Delves, P., Martin, S., Burton, D. y Roitt, I. (2014) Inmunología Fundamentos. Argentina: Editorial Panamericana.

Forbes, B. A., Sahm, A. y Weissfeld A. (2009). Bailey & Scott's Diagnóstico Microbiológico. Argentina: Editorial Panamericana.

Henry, J.B. (2007). El Laboratorio en el Diagnóstico Clínico. España: Editorial Marbán.

Mazziotta, D. y Fernández, C. (2005). Gestión de la Calidad en el Laboratorio Clínico. Argentina: Editorial Panamericana.

Parslow, T., Stites D. y Terr A. (2003). Inmunología básica y clínica. México: Editorial Manual Moderno.

Winn, W., Allen, S., Janda, W., Koneman, E., Procop, G., Schrenckengerger, P. y Woods, G. (2008). Diagnóstico Microbiológico. Argentina: Editorial Panamericana.

Centro Nacional de Evaluación para la Educación Superior, A.C. (2016). Guía para el sustentante Examen General para el Egreso de la Licenciatura en Química Clínica (EGEL-QUICLI). Recuperado 23 julio de 2020.
<https://www.ceneval.edu.mx/documents/20182/35022/GuiaEGEL-QUICLI.pdf/eddc174f-b55d-4c2e-9c49-3a6349e22b1f>

Manual de Bioseguridad en el Laboratorio, Tercera Edición, OMS. Recuperado el 01 de agosto de 2020, de https://www.who.int/topics/medical_waste/manual_bioseguridad_laboratorio.pdf?ua=1

Secretaría de Economía. (2015). NMX-CC-9001-IMNC-2015, Sistemas de gestión de la calidad-requisitos. Diario Oficial de la Federación. Recuperado 23 de enero de 2017, de http://www.dof.gob.mx/nota_detalle.php?codigo=5435775&fecha=03/05/2016

Secretaría de Economía. (2015). NMX-EC-15189-IMNC-2015, Laboratorios clínicos-requisitos de la calidad y competencia. Diario Oficial de la Federación. Recuperado 23 de enero de 2017, de http://www.dof.gob.mx/nota_detalle.php?codigo=5393609&fecha=26/05/2015

Spanish Society of Microbiology
[https:// www.semicrobiologia.org/](https://www.semicrobiologia.org/)

Spanish Society of Laboratory Medicine
<http://www.seqc.es/>

Spanish Society of Hematology and Hemotherapy
<https://sehh.es/>

Spanish Society of Immunology
[https:// www.inmunologia.org](https://www.inmunologia.org)