



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	Clinical biochemistry
• Total hours of classroom, theory and practice	120
• Frequency in classroom per week	6 hours
• Total extra hours (Outside classroom)	30
• Modality	Schooled
• Academic period	Sixth semester
• Type of learning unit	Core
• Curricular area	ACFP-F
• UANL Credits	5
• Date of elaboration	15/09/2018
• Date of actualization	21/01/2022
• Responsible (s) for the design and actualization	Dr. E. Diana Guadalupe Robles Espino

2.Purpose(s):

Contribute to achieving the graduate profile by developing the necessary professional competencies to perform in the Clinical Laboratory through the execution of biochemical analysis methods, as well as the interpretation and validation of patient results.

This learning unit is related to Biochemistry, which provides the foundations of human metabolism; to Physiology, which offers knowledge of the function of organs and systems in the human body; and to Pathology, which introduces the concepts of disease. All of this knowledge is integrated into Clinical biochemistry to correlate laboratory tests with patient diagnosis. Additionally, it is related to Instrumental Analysis, which provides knowledge about the analytical methodologies on which the various determination methods in the Clinical biochemistry laboratory are based.

Within the learning units of more advanced semesters, there is a connection with Clinical pathology, Selected topics, and Professional practice, providing the necessary knowledge for interpreting and validating patient results, the basics of quality control, and the technical skills required for performing biochemical analyses.

Clinical biochemistry collaborates in promoting three general competencies of UANL; it encourages logical, critical, and proactive thinking by analyzing situations typical of work in the clinical laboratory, allowing for informed decision-making regarding sample management and the quality of laboratory results. During this learning unit, discussion spaces are created around the challenges facing our society in health matters, particularly in laboratory diagnostics, fostering interventions with a critical attitude, human commitment, and professionalism to seek the best alternatives for each situation.

Additionally, it promotes conflict resolution among the multidisciplinary health team through dialogue, negotiation, and mediation via case simulations. It collaborates with specific competencies by executing biochemical analysis of blood and urine samples for clinical diagnosis, interpreting results from biochemical profiles in correlation with patient diagnosis, and applying quality control tools to ensure the reliability of laboratory results.

3. Competence of the graduate profile
• General skills contributing to this learning unit Instrumental skills: 5. To use logical, critical, creative and proactive thinking to analyze natural and social phenomena that allow them to make relevant decisions in their sphere of influence with social responsibility. Personal and social interaction skills: 10. To intervene in the face of the challenges of contemporary society at the local and global level with a critical attitude and human, academic and professional commitment to contribute to consolidating general well-being and sustainable development. 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 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. 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. 7. To guarantee the reliability of the analytical results obtained by applying quality control guidelines as established by laboratory policies for correct decision-making.
4. Factors to consider for evaluating the learning unit
• Evidences. • Reports. • Accredited learning activities. • Seminar presentation. • Knowledge tests. • Course integrative project/product
5. Course integrative project/product:
Assessment of quality control case resolution, method verification and interpretation of results and clinical correlation.
6. Sources of support and consultation (bibliography, hemerography, electronic sources):

Bishop, M. (2019). Química Clínica: Principios, procedimientos y correlaciones. Estados Unidos. McGraw-Hill.

González, A. (2019). Principios de Bioquímica Clínica y Patología Molecular. España: editorial Elsevier.

Fernández - Espina, C. y Mazziota, D. (2005). Gestión de la Calidad en el Laboratorio Clínico. Argentina: editorial Médica panamericana.

Henry, J.B. (2007). El Laboratorio en el Diagnóstico Clínico. España: Editorial Marbán. Hickman, P.E. (Ed). (2009). Methods in clinical chemistry. [CD-ROM]. EUA: Pesce Kaplan Publishers.

Kaplan, L.A. y Pesce, A.J. (1993). Química clínica: técnicas de laboratorio, fisiopatología, métodos de análisis: teoría, análisis y correlación. Argentina: editorial Médica panamericana.

Robles, D.G. y Sánchez, M. (2020). Manual de Prácticas de Bioquímica Clínica. México: Facultad de Medicina, UANL.

Bio-Rad QC. (Video). Chapter 3: Levey-Jennings Charts & Westgard's Rules. Recuperado 07 de diciembre 2020 de: <https://youtu.be/6rPE2iFqTtl>

Canalizo-Miranda, E., Favela-Pérez, E. A., Salas-Anaya, J. A., Gómez-Díaz, R., Jara-Espino, R., del Pilar Torres Arreola, L., y Viniegra-Osorio, A. (2013). Diagnóstico y tratamiento de las dislipidemias. Revista Médica Instituto Mexicano del Seguro Social, vol.51, núm. 6, pp.700-709. Instituto Mexicano del Seguro Social, México. Recuperado 16 de abril 2017 de: <http://www.medigraphic.com/pdfs/imss/im-2013/im136t.pdf>

Carlos, F. (2018). (Video). Cinética enzimática. Recuperado el 07 de diciembre de 2020 en: <https://www.youtube.com/watch?v=wkyF67IfFlw>

González-González, J. G., Rodríguez-Gutiérrez, R., Lavalle-González, F.J.; González-Cantú, A., Taméz-Pérez, H.E., González Saldívar, G. y Villarreal-Pérez, J.Z. (2013). Hemoglobina A1c: A reliable and accurate test for diabetes care? A prospective study in Mexico. Revista Salud Pública de México, vol. 55, núm. 5, septiembre-octubre, 2013, pp. 462-468 Instituto Nacional de Salud Pública Cuernavaca, México. Recuperado 16 de abril 2017 de: <http://scielo.unam.mx/pdf/spm/v55n5/v55n5a2.pdf>

EMA. (2008). Guía para la validación y la verificación de los procedimientos de examen cuantitativos empleados por el laboratorio clínico. Recuperado el 07/12/2020 de http://consultaema.mx:75/pqtinformativo/GENERAL/Clinicos/Carpeta_2_Criterios_evaluacion/CLINICOS_Validacion-Verificacion.pdf

QCNet. QC Education. <https://www.qcnet.com/la/>

Prada, E. y otros. (2016). Control interno de la calidad vs control externo de la calidad. Revista de laboratorio clínico, 9(2):54-59. Recuperado 7 de diciembre 2020, de: <https://www.elsevier.es/es-revista-revista-del-laboratorio-clinico-282-pdf-S1888400816300071>

Secretaría de Salud. (2012). NOM-037-SSA2-2012, Para la prevención, tratamiento y control de las dislipidemias. México: Diario oficial de la federación. Recuperado 16 de abril 2017, de http://dof.gob.mx/nota_detalle.php?codigo=5259329&fecha=13/07/2012

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