

SYNTHETIC PROGRAM

1. Module identification code.	
Name of the institution:	Universidad Autónoma de Nuevo León
Name of the school:	School of Medicine
Name of the degree program:	Clinical Chemistry
Name of the course (learning unit):	Andrological analysis
Total number of class hours-theory and practice:	60
Class hours per week:	3 hours
Independent study:	30
Course modality:	Face-to-face instruction
Module level:	Eighth semester
Core/elective module:	Optative
Curriculum area:	ACFP-F
UANL credit points:	3
Create date:	November 20 th , 2019
Date of last amendment made:	January 13 th , 2023
Person(s) responsible for the design and amendment of the module:	Dr.C. Salomón Alvarez Cuevas M.E. Claudia Irene Sánchez Santillán M.C. Gemma Guadalupe Estrada Martínez

2. Purpose:

Andrological Analysis is a theoretical-practical LU that aims to develop competencies related to the application of traditional and cutting-edge laboratory methods and techniques for the investigation and diagnosis of male fertility potential. The unit also focuses on preparing students for specialized roles in andrology and assisted reproduction laboratories. Students will develop competencies in analyzing the structure and function of male gametes and seminal plasma through microscopic, biochemical, and molecular methods to diagnose infertility-related pathologies.

This LU fosters the development of UANL's general competencies, such as the application of autonomous learning strategies (1) using various didactic resources, the use of information technologies (3) to search for information on current topics, and effective oral and written communication (4). Students will employ logical thinking (5) to analyze natural and pathological processes, such as the structure and function of the male reproductive system and sperm, through the analysis of clinical laboratory methods. They will practice honesty, integrity, and professional ethics (11) by acting with rectitude in their academic activities and respecting applicable regulations. Additionally, during group activities, students will be able to express their ideas while respecting those of their peers, reaching agreements for effective decision-making (14).

The methodology employed in this course enables students to develop specific competencies that allow them to obtain, handle, and store biological samples (primarily semen samples) in compliance with Mexican and international standards for subsequent analysis and interpretation of results. This is accomplished by applying diagnostic and research techniques with a deep understanding of their underlying principles. Students will acquire skills and abilities in the field of semen analysis and the main techniques for processing this biological specimen, and will discuss the results of the applied methods, all while demonstrating professional and ethical values.

Throughout the Andrological Analysis LU, students will apply the skills acquired in previously completed courses, including Cell Biology, Morphological Sciences, and Physiology, where they learned about the structure and function of cells and tissues of the reproductive system and male gametes. From Basic Microbiology, Bacteriology, Mycology and virology, and Diagnostic medical microbiology, they will apply their microbiological knowledge to identify microorganisms that cause pathologies of the male reproductive system and may be associated with reproductive diseases. Building on their knowledge and skills from Immunology, Clinical Biochemistry, and Clinical Pathology, students will be able to perform laboratory techniques with greater proficiency and a deep understanding of their theoretical foundations. The Andrological Analysis LU will allow students to complement their performance in the field of clinical diagnostic laboratory, whether during their Social Service, Professional Practices, or in their professional practice.

3. Competences of the graduate profile

General competences to which this module (learning unit) contributes:

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:

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 competences of the graduate profile to which this module (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.
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. Summative evaluation:

- Daily evidences
- Lab reports
- Parcial exams
- PIA

5. Course integrative project/product:

Case resolution: Theoretical and practical resolution of clinical andrology cases, including observation of video material of a semen sample, microscopic analysis of the same, and the elaboration and interpretation of the report of its results.

6. References:

- Ashok Agarwal and Tamer M. Said. (2010). Interpretation of Basic Semen Analysis and Advanced Semen Testing. Springer.
- Dr. J.G. Franco Junior. (2006). Manual de Procedimientos del Laboratorio de Reproducción Asistida. Red Latinoamericana De Reproducción Asistida.
- Eds. U. Kvist y L. Björndahl. (2004). Manual de Análisis Básico de Semen. Sociedad Española de Bioquímica Clínica y Patología Molecular. Springer Science Business Media.
- G.R. Dohle, A. Jungwirth, G. Colpi, A. Giwercman, T. Diemer, T.B. Hargreave. (2007). Guidelines on Male Infertility. European Association of Urology.
- World Health Organization. (1999). WHO Laboratory Manual for the examination of human semen and sperm cervical mucus. Interaction.4th. ed. Cambridge: Cambridge University
- **World Health Organization. (2010). WHO laboratory manual for the examination and processing of human semen. WHO Library Switzerland. 5th ed.**