



FACULTAD
DE MEDICINA



MODULE DESCRIPTION (SUMMARY PROGRAM).

1. Module Information Code:

Name of the Institution and School	Universidad Autónoma de Nuevo León, School of Medicine
Name of the Learning Unit	Genetics
Total classroom hours for theory and/or practice.	51 hours
Total extra classroom hours	39 hours
Course Modality	Schooled
Type of academic period in which the module is offered	3rd Semester
Type of Learning Unit in the Curriculum	Compulsory
Curriculum area:	ACFB
UANL credit points	3
Date of module creation:	September 30, 2014
Date of last amendment:	August 10, 2020
Person(s) responsible for the module design and amendments:	Dra. med. Laura Elia Martínez Garza, Dra. Graciela Arellano López Uriarte

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2. Purpose(s)

The development of new technologies that are increasingly specific and precise has allowed the knowledge of new genes, as well as their regulation and expression in various tissues or cells in particular; today, through complex diagnostic and therapeutic methodologies, it is possible to provide a management to certain genetic diseases, thus generating additional fields to act with genetic patients.

To use this knowledge and make it useful in the training of the surgeon and midwife, it is important to establish the clinical characteristics, cytogenetic and molecular variants, risk factors and epidemiological aspects to integrate the diagnosis of the most frequent genetic diseases, as well as to know the genetic component of those multifactorial pathologies even more common than the purely genetic ones.

This Learning Unit is specifically related to Developmental Biology, Cell and Tissue Biology, Biochemistry, as well as Molecular Biology, which provide the concepts of human development as well as the structure and function of the normal human organism that serve as the basis for understanding genetic pathology. It contributes to the general competences favouring the autonomous learning and the handling of information and communication technologies by structuring activities in electronic and written environments with critical judgement. It also prepares and lays the foundations for the clinical integration of diseases with a chronic degenerative genetic component, pediatric and the field of gynecology and obstetrics. In addition, it promotes an attitude of respect and professionalism when analyzing specific clinical cases or situations that arise in the local area, as well as in other contexts.

With regard to the specific competences of the profession, it contributes to the use and application of the scientific method through the analysis of clinical cases using deductive reasoning in order to integrate a clinical diagnosis. Likewise, it promotes ethics and professionalism by exemplifying situations susceptible to discrimination, raising awareness through case analysis, of the value of medical care regardless of the patient's condition. Collaborative work is also promoted by using teaching and learning strategies of this type during the sessions and encourages participation in continuing medical education activities as well as charity.

3 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.
4. Dominate their native language in oral and written form with correctness, relevancy, opportunity and ethics adapting its message to the situation or context, in order to transmit of ideas and scientific findings.

Personal and social interaction skills

9. Maintain an attitude of commitment and respect towards the diversity of social and cultural practices that reaffirm the principle of integration in the local, national and international context with the purpose of promoting environments of peaceful coexistence.

Integrative skills

14. Resolve personal and social conflicts in accordance with specific techniques in the academic field and their profession for the proper decision making.

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

- 8.- Integrates professional values and ethics into his medical practice, making no difference due to gender, race, political or sexual preference, religious beliefs, activities developed, disabilities or socioeconomic level, promoting social inclusion and contributing to the population's well-being, their life quality and human development.
- 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.

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.

4. Summative Evaluation

- Written report
- Punnett squares
- Lymphocyte kariogram:
- Resolution of a clinical case
- Family trees
- Dysmorphological evaluation of clinical photographs
- Analysis
- Exam
- Course Integrative Product

5. Course Integrative Product

PIA: resolution of clinical cases of a genetic disease.

6. References

Textbook:

- Del Castillo, V., Uranga, R., Zafra, G. (2012). Genética clínica. México, D.F.: Manual Moderno.

Reference books:

- Turnpeny, P., Ellard S. (2009). Emery: elementos de Genética Médica. Barcelona, España: Elsevier, Churchill Livingstone.

Support articles:

- Bennett R., French, K., Resta, R. & Doyle, D. (2008). Standardized Human Pedigree Nomenclature: Update and Assessment of the Recommendations of the National Society of Genetic Counselors. Journal of Genetic Counselors, 17, pp.424-433.

- Del Valle Torrado, M. (2009). Evaluación etiológica del retardo mental de origen genético. Algoritmo diagnóstico y nuevas técnicas moleculares. Arch Argent Pediatr, 107, pp.246-255.
- Prieto, M., Guitian, C. (2009). Guía de uso de Medline/PubMed. noviembre, 2009, de Fistera Sitio web: www.fisterra.com
- Rey, R., Grinspon R. (2011). Normal male sexual differentiation and aetiology of disorders of sex development. Best Practice & Research Clinical Endocrinology & Metabolism, 25, pp.221-238.
- Sabin M., Werther G., Kiess, W. (2011). Genetics of obesity and overgrowth syndromes. Best Practice & Research Clinical Endocrinology & Metabolism, 25, pp.207-220.
- Seaver L, Irons M. (2009). ACMG practice guideline: Genetic evaluation of short stature. Genetics in Medicine, 11, pp.465-470.
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Electronic Sources:

- Enfermedades hereditarias:
<http://www.ncbi.nlm.nih.gov/Omim/searchomim.html>
- Citogenética:
<http://www.pathology.washington.edu/galleries/cytogallery>
<http://www.citi2.fr/GENATLAS>
<http://www.infobiogen.fr/services/chromcancer>
- Genómicas:
<http://www.ncbi.nlm.nih.gov/blast>
<http://www.ncbi.nlm.nih.gov/entrez>
<http://www.ncbi.nlm.nih.gov/genemap>
- Mutaciones:
<http://www.uwcm.ac.uk/search/mg/allgenes>
- Mitocondriales:
<http://www.mips.biochem.mpg.de/proj/medgen/mitop>

