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# Course Syllabus

## NUR 410- Human Genetics in Nursing Practice

## College of Nursing

## 1437/1438-1st semester

### *Instructor Information*

**Instructor: Dr. Abdualrahman Alshehry, PhD,MSN,RN**

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### *Course Identification*

**Course Title:** **Human Genetics in Nursing Practice**

**Course Number:** NUR 410

**Section Number:** 2697

**Allotted Hours:** 3+0+0

**Pre-requisite: CLS 323**

**Co-requisite : None**

**Students’ Level:** 7th Level

1. **Course Description:**

This course provides nursing students with basic information about the influences of genetics on human health and illness. Students will become competent practices in applying important tools for effective genetic nursing practices. Students will learn about basic genetic science/ molecular concepts, the ethical and social implications of genetic information, commonly used genetic tests, genetic history taking, and pedigree construction and will become experienced in the use of professional and client-based resources to support evidence based health care and life-long learning in applied human genetics.

1. **COURSE OBJECTIVES:**

Upon satisfactory completing the course the students will be able to:

1. Examine basic principles of human genetics.
2. Evaluate the various aspects of genetic testing and reporting.
3. Analyze the actual and potential impact of genetic conditions on client systems at various stages of development.
4. Examine the genetic components of selected conditions and the present and potential implications for nursing practice, education, and research.
5. Discuss the ethical, legal, and social questions, and tensions created by advances in genetic knowledge and technology.

**III: Course Outline**

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| **Week** | **Day** | **Topic/s** |
| 1 |  |  |
| 2 | Sunday |  Introduction to the course  |
| 3 | Sunday | Unit 1: Basic Components and Purposes of Genetics* Main Components
* Implication
* Relationship to other Sciences
* Human Genome Project
 |
| 4 | Sunday | Unit 2: Scientific Basis of Genetics1. Basic Principles of Human Genetics
* Cells
* DNA

. DNA Replication. Mutation |
| 5 | Sunday | Unit 2: Scientific Basis of Genetics1. Basic Principles of Human Genetics
* Protein Synthesis
* Chromosomes and its Karyotype
* Phases of Meiosis and Mitosis
1. Relationship between DNA, Chromosomes and genes
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| 6 | Sunday |  **1st Quiz** |
| 7 | Sunday | Unit 3: Modes of Inheritance* Different Mode of Inheritance
* Types of Inheritance
* Presentation of Examples
 |
| 8 | Sunday | **1st Mid-term Exam** |
| 9 | Sunday | **Midterm Break** |
| 10 | Sunday | * Pedigree
	+ Definition and purpose
	+ Presentation of examples
	+ Constructing a family pedigree
 |
| 11 | Sunday | Unit 4: Common Genetic Diseases and its Nursing Management* Integumentary System (Albinism, Ichthyosis Vulgaris)
* Respiratory System ( Cystic Fibrosis)

Cardiovascular System (Hypertrophic Cardiomyopathy) |
| 12 | Sunday | **2nd Quiz**  |
| 13 | Sunday | * Neurological System (Alzheimer’s Disease)

Endocrine System (Nephrogenic Diabetes Insipidus) |
| 14 | Sunday |  **2nd Midterm Exam** |
| 15 | Sunday | Unit 5: Genetic Testing and Counseling* Definition of Genetic Testing
* Types of Genetic Testing
* Benefits, Risks, and Limitations
* Genetic Counseling
* Benefits of Counseling
 |
| 16 | Sunday | Unit 6: Ethics, Genetics and Nursing Practice* Ethical Issues in Genetics and Genomics
* Role of the Nurse in Genetics and Genomic Healthcare
* Future Directions
 |
| 17 | Sunday | Revision  |
| 18 |  | Final Exam |

**IV: Student’s Requirements**

Students are expected to comply the following requirements of this course:

1. Participates in the lecture discussion through individual sharing
2. Pass the quizzes and long term examination
3. Submits classroom requirements
4. Attendance

**V: Teaching Strategies**

* Participative Lecture Discussion
* Brainstorming
* Individual Sharing
* Presentation
* Assignments
* Individual Activity

**VI: Methods of Evaluation:**

Total Marks = 100 Marks; distributed as follows:

* Participation 10 Marks
* Quizzes 10 Marks
* 1st Mid-term Exam 20 Marks
* 2nd Mid-term Exam 20 Marks
* Final exam 40 Marks

**VII: References:**

**Books:**

Michael Conner & Malcolm Ferguson- Smith (1997) *Essential in Medical Genetics*, 5th Edition, Blackwell Science Ltd.

Janice L. Hinkle and Kerry H. Cheever Brunner and Suddarth’s Textbook of Medical-Surgical Nursing 13th Edition

Suzzane C. Smeltzer et.al Brunner and Suddarth’s Textbook of Medical- Surgical Nursing 12 Edition

**Internet:**

* Genetic Program Overview http://genetics.case.edu
* HMS Department of Genetics <http://genetics.med.harvard.edu>
* Assessing Genetic Risk Implications for Health and Social Policy <http://www.nap.edu>
* What is a Trait <http://learn.genetics.utah.edu>
* <http://www.cdc.gov>
* Environmental Influences [www.geneticseducation.nhs.uk](http://www.geneticseducation.nhs.uk)
* <http://www.geneticseducation.nhs.uk/for-healthcare-educators/clinical-images>
* <http://www.isong.org/ISONG_genetic_nurse.php>
* <http://www.nursingtimes.net/clinical-subjects/genetics/understanding-the-role-of-genetics-and-genomics-in-health-2-implications-for-practice/5008736.fullarticle>
* <http://www.eeoc.gov/laws/types/genetic.cfm>
* <https://www.clinicalkey.com/nursing/#!/content/book/3-s2.0-B9780323091787000044>
* <http://www.netwellness.org/healthtopics/idbd/2.cfm>