

Understanding Genetics

Spring 2026

Virtual Wednesday 12:45-2:15pm

Instructor: Carolyn Yucha, RN, PhD
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Dr. Yucha is both a nurse and a physiologist. She has taught numerous courses in Nursing Schools in Anatomy, Physiology, and Pathophysiology. She has served as Editor of *Biological Research for Nursing*, a peer-reviewed scientific journal, for the past 22 years. Dr. Yucha was Dean of the School of Nursing at UNLV from 2004-2018. She hopes to share her enthusiasm for the relationships between structure and function in our extraordinary human bodies.

Course Description: The science of genetics has advanced markedly during our lifetimes. This course will provide an overview of molecular genetics, structure of chromosomes, foundations of inheritance, human genetic disorders, and genetic testing and counseling leading to personalized medicine.

Please note that the schedule may be revised to meet the schedules of the guest speakers.

Day and Time: This course will be offered online (virtual) on Wednesday 12:45 pm - 2:15 pm.

Schedule –

Class 1	Introduction and Overview Progress in Genetics Human Genome Project Genetic Testing Registry Genetic Tests Secondary Findings
Class 2	Chromosomes DNA Structure Codons & Proteins Mutations Sickle Cell Anemia & COVID
Class 3	Patterns of Inheritance Fertilization, role of egg & sperm Sex determination Punnett Squares Patterns of Inheritance & Pedigree Charts Autosomal Dominance and Recessive X-Linked Dominant and Recessive Penetrance & Expressivity Mitochondrial DNA Cholesterol Example

- Class 4 Genetics & Aging
 Aging and Theories of Aging
 Telomeres & Telomerase
 Telomere Biology Disorders
 Epigenetic Processes
 Epigenetic Clocks
- Class 5 Pharmacogenetics vs. Pharmacogenomics
 Cytochrome P450
 Metabolizer Types
 Pharmacogenomics
 Common drugs for which pharmacogenetic tests exist
 Warfarin
 Role of Food & Drug Administration
 CPIC
- Class 6 Genetic Counseling – Guest Speaker Montana Henson
 Graduate Student in Rutgers University Genetic Counseling Master’s Program
- Class 7 Genetic Genealogy – Guest Speaker Ben Kempner
 Retired IBMer. Genealogy instructor at OLLI and the LV FamilySearch Center.
- Class 8 Personalized Medicine – Guest Speaker
 Dr. Martin Schiller, Professor UNLV
 Executive Director of the Nevada Institute of Personalized Medicine
- Class 9 Ethics of Genetics
 Preimplantation Genetic Diagnosis
 CRISPR
 Behavioral Genetics
- Class 10 Other topics suggested by OLLI members