DNA and the Changing World

BIL 300

Course Syllabus

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Office Hours: 4-5pm, Tuesday and Thursday online via Blackboard or by appointment via e-mail.

Course Information

This course will give you a thorough understanding of DNA, gene, gene function, genome and inheritance, and will enable you to apply this understanding to real-world issues, both personal and societal, from the history of life to challenges and opportunities we face in the modern times at the molecular level.

If you:

are concerned about a genetic disease either directly or in a family member,

are curious about the genetic diversity of humans or other species,

want to have your own genomes or genes analyzed by a technical company and want to know the implication of such analysis,

concern about the public use of personal genetic information,

are interested in conservation of endangered species,

are interested in genealogy and ancestry analysis,

are concerned about the genetic integrity of your food,

want to understand the genetic aspect of certain human behavior, such as addiction, depression, and intelligence,

Then, this course is for you.

Course Learning Outcomes

Students will learn and understand concepts of gene, genome, allele, allele frequency and genomic information in the context human population.

Students will develop a deeper understanding of the molecular mechanism of evolution.

Students will learn to critically evaluate current events as they relate to genetic concepts, including cloning, gene therapy and genetically modified organisms.

Students will achieve an objective understanding of how genetics shapes their lives from both social and biological perspectives. They will develop objective views on issues such as: how different we are from each other and how different we are from other species.

Students will understand the genetic bases for the challenges faced in their society and individual lives with the development of genetic and genomic technology. They will develop objective views on issues such as: who owns our genomic information and who should have access to our genomic information.

Students will have a basic understanding of the biological processes involved in genetic replication and inheritance. They will understand the molecular mechanism of the predisposition of genetic inherited diseases.

Textbook

The online reading material in the course modules available on the Blackboard course space and linked articles are the main source of information in the course. *Human Genetics* by Ricki Lewis can be used as an optional reference text for basic genetic concepts and processes.

Course Modules and Schedule

Module 1	How Different Are We? DNA Molecules, Genes and Us
	May 19- **May 23 at 11:59pm**
Module 2	Changes of DNA and Human Genetics Diseases
	May 24 -**May 28 at 11:59pm**
Module 3	Gene Function and Personal Genomics
	May 29 **- June 2 at 11:59pm**
Module 4	The Mechanics of Inheritance
	June 3 **-June 7 at 11:59pm**
Module 5	Mechanisms of Gene Linkage, Epigenetics, and Extranuclear Gene Inheritance
	June 8 - **June 12 at 11:59pm**
Module 6	The Genetics and Environmental Impact on Inheritance
	June 13 - **June 17 at 11:59pm**
Module 7	Heritability and Human Population Genetic Analysis
	June 18- **June 22 at 11:59pm***
Module 8	Conclusion: What We Have Learned from our Genome
	June 23 - **June 27 at 5:00pm***

Students are required to complete each module by the date posted, approximately every four days. This will ensure uniform participation by students in the activities, discussion assignments and timely completion of all course requirements, including end of module exams.

Class Assignments

Discussions

Each module contains at least one discussion assignment. These class discussions are important for developing a social learning community and a successful online course.

Student discussions in the course Blackboard space are moderated by the instructor. Also, the instructor may pose questions for your thoughtful discussion and response at different points during the semester. However, the primary purpose for these assignments is for students to initiate questions and carry on discussions with each other. Your active participation not only demonstrates an understanding and appreciation of the subject matter (or lack thereof), it also contributes immensely to the overall learning experience for all students in this course. Consequently, all students are expected to participate in a helpful and constructive manner in each module's discussion thread(s).

All postings are expected to be professional and respectful in tone, clear, competently produced and delivered; and their content should reflect an understanding of the module content, activities and assigned readings.

Discussion posts will be awarded points by the instructor based on a thoughtful demonstration that the students have reviewed all module content and activities relevant to that post. Failure to participate with requisite regularity and sagacity will result in a loss of points. Discussion assignments make up a total of 20% of your final grade.

In addition to the discussion threads, students are expected to do the required course work on a weekly basis. Preparation and participation in discussion threads and activities will contribute materially to a good grade in this course.

Module Exams

At the end of each course module, there will be a required exam. **These eight exams will comprise 80% of your final grade (10% for each exam).**

All module exams will consist of multiple choice, true/false and similarly styled questions. Students may be tested on *anything* covered in the online course, audio lectures, required readings, external website information or discussion posts created by the professor as part of that module. The exams will not cover previous modules.

Please Note: Blackboard exams will close at the close of the module (dates and times above). They must be completed by then.

Evaluation

Your final grade points come from taking and completing **discussion assignments and module exams.** You should read the online course documents, including various web links, in a timely fashion and take the module exam as you finish each module. There are also required discussion assignments.

Students are expected to engage with the course throughout the period in which each module is assigned. You will not perform well in this course if all coursework is left to the final hours before submission deadline.

80% of your final grade points will come from the total percentage of your eight module exam grades.

20% of your final grade will come from the total percentage of all your discussion assignments.

Your final grade in letter from will be determined based on the following scale:

A= 90 or greater
B= 80 to 89
C= 70 to 79
D= 60 to 69
F= Lower than 60%

This grading scale will be applied only at the end of the course, and does not apply to individual tests. The instructor reserves the right to make fine adjustments on the grading scale at the end of the term.

University of Miami Honor Code

You are required to follow the University of Miami Honor Code, established for students to protect the academic integrity of the University of Miami. Please review the Undergraduate Honor Code.

(http://umcontent.com/UM_HighEd_2013/AFS101/undergrad_honorcode.pdf)