NUR 3197: Introduction to Genetics and Genomics in Health Care
All sections
Fall 2021
2 Credits

Instructor
Dr. Jennifer Drew
Senior Lecturer, Microbiology & Cell Science Department
Email: Through Canvas (or jdrew@ufl.edu if you cannot access Canvas)
Student Hours on Zoom: Announced in class

Pre-requisites
Admission to the BSN Program--University of Florida College of Nursing

Course Description
This course is intended for UF nursing majors. The field of genetics and genomics is moving at a fast pace and its possible to use the sequence of an individual's own genome to make medical decisions. Genetic information will play a greater role in future health care as nearly every disease has a genetic component. Therefore, a sound knowledge of genetics and genomics is essential for health care providers in evaluating needs of patients and delivering of care to patients and families. The course will prepare nursing students by reinforcing the basic principles of genetics while exploring new advances and discussing how these advances will affect health care. The course material will address many of the core competencies identified in the *Essentials of Genetic and Genomic Nursing: Competencies, Curricula Guidelines, and Outcome Indicators, 2nd Edition and A Blueprint for Genomic Nursing Science (2013)*.

The course will be entirely web-based, and all lectures will be delivered online. The reading assignments, course lecture materials and online activities will be posted each week. There will be a quiz each week over the week's material. All exams will be proctored. Specific information about exam proctoring procedures will be posted closer to exam time.

Course Goals:
1. To cultivate a solid foundation in molecular biology in order to fully understand how the genome determines traits, including susceptibility to disease.
2. To understand the role of genetics and genomics in the development, detection, prevention and treatment of disease.
3. To recognize the major types of genetic disease, their characteristics, and to explain their patterns of inheritance and predict risk.
4. To understand broadly the biotechnological processes used in detecting, diagnosing and treating disease.
5. To develop a working command of genetic terminology, tools, resources and research in order to explain concepts to patients.
6. To appreciate how advances in biotechnology and genomics are personalizing all aspects of medicine including prevention, diagnostics, and treatment.

List of Topics

Module	Topic
1	Introduction to course Overview of Genetics DNA structure and replication
2	Gene Action: From DNA to trait Gene expression control
3	Mutations
4	Chromosome assortment and genetic recombination
5	Single gene inheritance Pedigree analysis
6	Beyond Mendel's Laws
7	Sex-linked inheritance Epigenetics
8	Chromosomal abnormalities
9	Genetic Resources
10	Genetic technology
11	Cancer
12	Human Genome Variation and Common Disease
13	Genetic testing and treatment
14	Personal genomics Precision Medicine Pharmacogenetics

Quizzes are due on the last day of the module week.

Recommended Textbook (Highly recommended but not required)
Lewis, R. (2021). Human Genetics: Concepts and Applications, (13th ed.) Boston: McGraw-Hill
Publishers.
Available via UF All Access.
Specific reading assignments are posted in each module.

E-learning system - Canvas
The course will be managed entirely through the e-Learning in Canvas (elearning.ufl.edu). The
e-learning homepage contains tips and tutorials for students as well as computer requirements. It
is your responsibility to become familiar with Canvas and to ensure that you have the appropriate
browsers, settings, internet speed, etc. For any technical questions regarding Canvas, please visit
the LSS site (https://wiki.helpdesk.ufl.edu/FAQs/E-Learning) and/or the UF Help desk
(http://helpdesk.ufl.edu/). They can address technical issues such as not being able to view
course materials, not being able to access the quizzes, not being able to send mail, etc. **All
technical issues/questions/comments should go to the Help Desk first (352-392-HELP).**
They are the experts. The Help Desk suggests that if you encounter any problem (error
messages, etc.) that you take a screen shot of the problem and save it. This will help the Help
Desk in fixing your problem.

Office Hours
Since this is a web-based course and I am off-campus, my student hours will be conducted with Zoom in Canvas. Please see the welcome module material in Canvas for more information on how to use the conferencing tool. Prior to exams, there will be open QandAs on Zoom.

Email and Announcements
All email communication regarding this course will be done through the Conversations tool (Inbox) of Canvas. This mail system is private and secure. It is your responsibility to check your Canvas mail and Announcements **frequently** to stay updated on the course. Please check the course site **a minimum of two times per week** to be certain that you are not missing any important communications. As the instructor, I will respond to your questions and emails as promptly as I can. By maintaining all email communication through Canvas instead of other email domains, it reduces the chance that discussions will get lost among outside accounts.

Course structure
The course is structured as 14 Modules – approximately one each per week of the semester. Each module focuses on a different topic. The topics build on each other so in order to understand a topic in Module 6, for example, it is necessary that you understand the material from Module 1. An entire module's worth of material is posted at once.

Start by navigating to the Modules page. Then, click on the appropriate Module. For each module, there will be several items to complete. The first item will always list the **objectives** for the week. Keep the objectives in mind as you learn the material. If you meet the learning objectives, you should do very well on the quiz and the exams. After reading the learning objectives, please go through the material in the order presented. The next item in the list will usually be the reading assignment, followed by the lectures, and links to any online tutorials or modules. After you go through the material in the order presented, you are always free to return and visit any of the content. The welcome video will give an example of the types of course content and how it will be presented. The pdf of the lecture slides of each module will also be posted for your convenience. This convenience is for students who wish to print out the slides and follow along with the lecture, study the notes later, etc. The lectures slides will only be available in pdf format.

Each module includes a quiz. Quizzes are usually due by 11:59 PM EST on the day the module closes. The material will be available to you throughout the semester, but once a quiz due date passes, you can no longer submit the quiz for credit or view the quiz. (See below for more info on quizzes). For those of you who like to work ahead, modules will be available generally 2 weeks in advance of their scheduled weeks throughout the semester. I will try to open the modules as much in advance as I can.

Assessments
Exams
Four proctored, non-cumulative exams will be administered throughout the semester. Each exam is worth 15% of your grade. All exams are open-book/note, but must be taken within a time limit that is usually 60 min. All exams are proctored with a remote proctor service. Specific details regarding the exams will be given closer to the exam dates. If an exam is taken without approved

proctoring arrangements, credit will not be given and the score will be a zero. If it is detected that a student's e-Learning account was signed into by more than one instance during an exam (i.e., two individuals signed into the same student account during an assessment), credit will not be given and the score will be zero.

Exam Dates will be announced during the first week of class.

Quizzes
Brief quizzes will be given that cover each module. See dates listed in course for due dates for each quiz. Following the modules according to the weekly schedule ensures timely participation and progress in the course. These quizzes are a learning tool so you may take each quiz up to **two times each** and only your highest score of each week's quiz will be recorded for a grade. Your quizzes will count for **15%** of your final grade. You can drop your 5 lowest quiz scores. Any quizzes not taken by the due date will be converted to a grade of 0 and count towards your 5 lowest quiz scores. Thus, dropped quiz grades will include any quizzes missed for **any** reason. This includes minor illness, travel, conferences, and **technical problems** etc. Rarely, technical issues may occur while you are taking the timed quiz, and any quizzes affected by technical problems will count against your drops. A quiz will not be re-opened or reset if it is interrupted by technical difficulties. (NOTE: A slow Internet connection may affect timed quizzes, but it is your responsibility to use a connection at the speed suggested in the LSS homepage.)

Grade Corrections/Adjustments
Following the close of each quiz/exam window, you have 10 calendar days to contest your quiz/exam grade in a Canvas email to me (i.e., a student cannot request a grade correction on quiz 2 during the last week of the course). Any request for a grade adjustment should include a fully written justification, with evidence if possible, in support of the proposed grade change (i.e. why is the proposed answer a better fit or equally as good a fit as the answer on the grade key). Since course grades are submitted within a few days after the last exam, you will not have the full 10 days to contest the last exam. *Please note that you can ask a question about or discuss any quiz/exam question at any time during the semester for the purposes of understanding and education.*

Student Participation: Discussion Board Posts
To facilitate communication and participation, there will be discussion boards for student engagement with the material and each other. You will be divided into discussion groups. More information will be provided in the course on the discussion board activities. Your participation in the discussion will count for 5% of your final grade and will be determined by substantive and thoughtful posts.

Genetics in Health News Final Project
It is nearly impossible to read a news site without learning about a new medical breakthrough or treatment that is because of genetics and genomics advances. An objective of this course is to understand the contribution and relevance of genetics to our health. Sometimes, these genetic advances may prompt ethical or legal debate. To promote discussion and to better understand the role of genetics in our health care and society, there will be an assignment in which you will

present on an issue, discovery, disease not covered in the course material. This assignment will count for 10% of your final grade. Further instructions on this assignment will be provided.

	% of Final grade
Exam 1	15
Exam 2	15
Exam 3	15
Exam 4	15
Quiz grade*	15
Genetics in Health News	10
Discussion assignments	<u>15</u>
	100

*5 of the lowest quiz scores will be dropped. Missed quizzes count as a zero.

Grading Scale

A	95-100	(4.0)
A-	93-94	(3.67)
B+	91- 92	(3.33)
B	84-90	(3.0)
B-	82-83	(2.67)
C+	80-81	(2.33)
C	74-79	(2.0) **
C-	72-73	(1.67)
D+	70-71	(1.33)
D	64-69	(1.0)
D-	62-63	(0.67)
E	61 or below	(0.0)

** 74 is the minimal passing grade.

No extra credit is given in this course.

Make up and attendance policy

Requirements for make-up exams, and other work are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance/aspx. Since the course is online and the material can be accessed at your convenience, missed weekly quizzes will count as one of your five dropped quiz grades. If a serious illness or unexpected event (surgery, etc) results in multiple missed quizzes in a row, please contact me and we will discuss options pending appropriate documentation. Exams are to be proctored and taken during the window they are scheduled. If an exam is taken without approved proctoring arrangements, credit will not be given and the score will be a zero. There are no make-ups for exams without prior notification and without proper documentation for an excused event or activity. Any missed, unexcused exams or other assessments will receive a zero. Because exam windows will be a minimum of 48 hours, there is no way for exams from other courses to overlap with these exams.

<u>Academic Honesty</u>
As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity." You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dsoufl.ed/SCCR/honorcodes/honorcode.php.

Additional comments regarding academic integrity:
Students are encouraged to discuss material with each other from the course, help each other understand concepts, study together, and even discuss assessment questions with each other once the quiz window is closed. However, the following is considered academic dishonesty, and I expect that no student will ever do any of the following:

- Have another person complete a quiz for you

- Copy another student's quiz in this course

- Collaborate with anyone while taking a quiz in this course

- Discuss the questions and answers of a quiz with other students while the quiz window is still open

- Manipulate and/or distribute any materials provided in this course for any purpose (including course lecture slides).

- Use <u>any</u> notes, slides, posts, etc. provided by a previous student in the course

<u>Software Use</u>
All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources
Students experiencing crisis or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

Health and Wellness
U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.
Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.
Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.
University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).
UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road,
Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.
GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website or call 352-273-4450.

Academic Resources
E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.
Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.
Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
On-Line Students Complaints: View the Distance Learning Student Complaint Process.

Students with Disabilities
Students requesting class accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. 0001 Reid Hall, 352-392-8565,

Statement on Distance Education Courses
Should you have any complaints with your experience in this course, please visit
http://www.distance.ufl.edu/student-complaints.

Course Evaluation Process.
Students are expected to provide professional and respectful feedback on the quality of
instruction in this course by completing course evaluations online via GatorEvals. Guidance on
how to give feedback in a professional and respectful manner is available at
https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period
opens, and can complete evaluations through the email they receive from GatorEvals, in their
Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course
evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

Course Recordings
Students are allowed to record video or audio of class lectures. However, the purposes for which these
recordings may be used are strictly controlled. The only allowable purposes are (1) for personal
educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in
preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students
may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a
particular subject, including any instructor-led discussions that form part of the presentation, and
delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a
University of Florida course. A class lecture does not include lab sessions, student presentations, clinical
presentations such as patient history, academic exercises involving solely student participation,
assessments (quizzes, tests, exams), field trips, private conversations between students in the class or
between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit,
circulate, distribute, or provide access to a recording, regardless of format or medium, to another person
(or persons), including but not limited to another student within the same class section. Additionally, a
recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole
or in part, any media platform, including but not limited to social media, book, magazine, newspaper,
leaflet, or third party note/tutoring services. A student who publishes a recording without written consent
may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline
under UF Regulation 4.040 Student Honor Code and Conduct Code.