

Genetics in Nursing and Healthcare



Faculty Contact Information

Name:

Email:

Office Hour information:

Course Information

Course Description

This course explores the implications of medical genetics for the clinical nursing practice. The basic history and principles of genetics are reviewed, and their implications in health and disease discussed and analysed. Cutting edge approaches to genetics and genomics research are examined and consideration is given to their current and likely future clinical application. The course also focuses on the ethical, legal, and social implications of genetics in the clinical practice, with reference to issues such as consent, genetic privacy, and consumer genetic testing.

Course Goals

- Review the basic principles and history of genetics in relation to healthcare
- Describe common genetic disorders and their basic mechanisms of inheritance
- Demonstrate a knowledge and understanding of the role of genetics and current advances in genetics, such as sequencing, epigenetics and metagenomics in healthcare and the nursing practice
- Discuss and analyse some of the complex ethical, social, and legal implications of the clinical delivery of genetic services to patients and consumer genetics

Student Learning Outcomes

At the end of this course, students will:

1. Understand the basic science and history of genetics and its terminology, in particular in relation to healthcare
2. Understand the importance of genetic advances in research, sequencing, epigenetics, and metagenomics to healthcare
3. Understand the implications of consumer genetics to healthcare
4. Understand and discuss the issues regarding social and ethical questions in medical genetics

Course Assignments, Grading, and Assessment

Assignment	Percentage	Grading Requirements
Attendance and Participation	20%	

Terminology quiz	5%	Please see rubric on MyStudy
Pedigree	5%	Please see rubric on MyStudy
Exam	15%	Please see rubric on MyStudy
Essay	30%	Please see rubric on MyStudy
Research Presentation	25%	Please see rubric on MyStudy

[Brief Assessment Overview](#)

Assessment 1: Terminology Quiz

Due:

This quiz will cover the terms and vocabulary discussed in all classes to date, course required reading (in reference books and the MyStudy course links), class discussions and observations from field trips.

Assessment 2: Pedigree Exercise

Due:

You will be provided a series of prompts, and need to create a pedigree according to the information provided. For some questions you may also need to show a punnet square.

Assessment 2: Exam

Due:

The exam will be a combination of short answer and multiple choice questions. It will cover the topics covered in all classes to date, course required reading (in reference books and the MyStudy course links), class discussions and observations from field trips. It will be focused more on the second half of the class, but will cover some well-covered concepts/sections from the first half that you should know.

Assessment 3: Essay (2,000 words)

Due:

Outline and describe the advantages and disadvantages of direct to consumer genetic testing.

The required reading, 'My Beautiful Genome' and course links on MyStudy will help with this essay question as well as other reading sourced by yourself in books and online. The essay should be approximately 2000 words and should include a reference section, which is not included in the word count.

Assessment 4: Research Presentation (7 minutes per person)

Due:

Topics will be assigned in class (for example, epigenetics, gene therapy, cloning) and you will need to present on how your topic relates to the advance of healthcare.

This group presentation should be 15 to 21 minutes long (7 minutes per person), and all people in the group should approximately have an equal part in presenting.

The presentation should show clear evidence of the depth of your research, build on the topics and concepts covered in class, and where possible demonstrate original thought and ideas. You may use a visual aid such as PowerPoint or props.

Grading

Grade	Knowledge & Content	Methodology & Structure, Language & Style	Understanding, Reflection & Critique	Integrative thinking & demonstration of experiential learning
A (93- 100%) A- (90-92%)	Interesting topic handled with intelligence, originality, and depth; wealth of supporting material, smoothly integrated into the text; tone is evident and maintained throughout; no factual inaccuracies	Material is unified and well focused; organization is clear, logical and purposeful throughout the essay; well-chosen examples. Uses sophisticated sentences effectively; usually chooses words aptly; observes conventions of written English and manuscript format; makes few minor or technical errors	Well-chosen examples; persuasive reasoning used to develop and support thesis consistently: uses quotations and citations effectively; causal connections between ideas are evident	Gives full insight into the nature of an event, experience, or artifact; achieves complete integration of knowledge from diverse disciplines to interpret an issue. Shows clear understanding of cultural impact through appropriate examples
B+ (87-89%) B (83-86%) B- (80-82%)	Content is above average; worthwhile topic; satisfactory depth of development; supporting details for the thesis and topic sentences are specific, concrete, and plentiful; has only minor factual inaccuracies	Material is unified and well focused; pattern of organization is clear, logical, and well executed; makes an effort to organize paragraphs topically. Some mechanical difficulties or stylistic problems; may make occasional problematic word choices or awkward syntax errors; a few spelling or punctuation errors or cliché; usually presents quotations effectively	Pursues thesis consistently: develops a main argument with clear major points and appropriate textual evidence and supporting detail; makes an effort to organize paragraphs topically	Gives some insights into the nature of an event, experience, or artifact; achieves partial integration of knowledge from diverse disciplines to interpret an issue; some understanding of cultural impact through appropriate examples
C+ (77-79%) C (73-76%) C- (70-72%)	Worthwhile topic; supporting material for thesis and topic sentences is general and abstract rather than specific and concrete; most information is correct	Organization is clear, logical, and coherent; some ideas unsupported; fails to integrate quotations appropriately. More frequent wordiness; several unclear or awkward sentences; imprecise use of words or over-reliance on passive voice; one or two major grammatical errors	Only partially develops the argument; shallow analysis; some ideas and generalizations undeveloped or unsupported; makes limited use of textual evidence; fails to integrate quotations appropriately	Able to explain to a limited extent, the quality of a performance, event, or artifact; gives few insights into event, experience; discusses few qualities of an experience; a limited understanding of cultural impact with few examples

D (60-69%)	Trivial subject; very few supporting details for the thesis and topic sentences; has some correct & incorrect information	Not logically organized; digresses from one topic to another; no clear organizational pattern. Some major grammatical or proofreading errors (subject-verb agreement; sentence fragments); language marred by clichés	Frequently only narrates; digresses from one topic to another without developing ideas or terms; makes insufficient or awkward use of textual evidence	Little integration of experience and narrative; limited insight of issues and insufficient understanding of cultural impact
F (0-59%)	Consists of unsupported generalities and/or the repetition of commonplace ideas; lacks originality and insight; information is inaccurate or absent	Does not follow the instructions; rambling, disorganized and incoherent. Numerous grammatical errors	Little or no development; may list incorrect facts or misinformation; uses no quotations or fails to cite sources or plagiarizes	Little or no integration experience and narrative; lack of insight and fails to understand cultural impact

Policies specific to this course

- **Co-curricular Activities and Field Trips:** Field trips for your FIE courses have been planned to help students achieve the learning objectives of the course and are required. They take place during class time unless otherwise noted. Details about required visits appear on the class by class schedule below. Please note that any make up for missed co-curricular activities are at the personal expense of the student.
- **Late submission of work:** Written work may be submitted later than the due date only with express permission from the faculty. Credit is not given for work received late, except in exceptional circumstances of personal illness or similar (which must be made known to FIE at the time). Documentation of exceptional circumstances from a third party, such as a doctor's note, may be required. Any extensions made beyond the last class meeting must be committed to writing and include information on the exceptional circumstances that require the extension, the nature of work yet to be submitted, and the date by which the work will be received. If said work is not received by the agreed extension date, barring further exceptional circumstances, the work will not be given credit.
- **Late arrivals to class or site visit:** Please arrive on time. Lateness, particularly on days with co-curricular visits, results in missed course material. Faculty may use their discretion to mark a student as 'Absent' if they feel the student has arrived too late or left too early to be considered 'Present' for that session.
- **Trigger Warnings:** Some topics covered in class may expose students to past traumas and evoke a negative reaction. Sensitive topics can vary, such as sexual violence, death, racism, or xenophobia. I want this to be an inclusive space where every student feels comfortable; therefore, I will provide content warnings before lectures for sensitive subject matters. Content warnings are meant to give students a forewarning so they can prepare for their emotional safety. It is important to note that anything in the environment could be a trigger for someone's trauma, such as smell, sound, or texture; it is impossible to account for all possible triggers, and ask for grace as I do my best as an educator to

warn students of potentially distressing content during lectures, assignments and/or discussions.

Attendance and Participation

- Regular attendance is essential in order to pass a course. A class constitutes lectures, student presentations, discussions, seminars, co-curricular activities, tests, and examinations. In addition, under UK Home Office regulations class attendance is mandatory.
- Class attendance and participation is formally recorded and incorporated into a student's final grade.
- In addition to physical presence in class, a student's participation in a class is evaluated on the mastery of assigned course readings as reflected in a consistent, valid contribution to class discussions, in-class exercises, and in asking questions that enrich the on-going discourse. Consistency and validity in participation is expected in every class. Limited participation will have a negative impact on a student's participation score.
- When unexpected events cause students to miss a class, it is the student's responsibility to initiate contact with the faculty member to notify them in advance, or as soon as is reasonably possible.
- Absence from class does not relieve a student of responsibility for assignments. Students bear the ultimate responsibility for all missed class material and assessment.
- If a student misses 25% or more of a course, then they may be awarded a failure for the course and/or not permitted to finish the course.
- [See the full attendance policy here](#)

Required Readings

Frank, L. (2011). *My Beautiful Genome: Exposing Our Genetic Future, One Quirk at a Time*. Oneworld Publications

Berry, T. & Workman, M. L. (2011). *Genetics and Genomics in Nursing and Healthcare*. F.A. Davis Company

Additional Resources and Readings

Provided on MyStudy@FIE.

MyStudy@FIE

MyStudy@FIE is FIE's virtual learning environment based on the open-source platform Moodle. Students are required to access MyStudy@FIE for course information, readings, link to resources, assignment submissions and communication with faculty.

FIE's Values in the Curriculum

A unique aspect to FIE's curriculum is our courses reflect an engagement with values of 1) knowledge and inclusivity, 2) ethics and human rights, 3) social and cultural engagement, and

4) sustainability. For information about each of these values and how each of FIE's courses aligns with them, please see [Our Values](#).

Topics

- Introduction to Genetics
- Genetic Diseases
- Sequencing
- Consumer Genetics
- Genetic disease research
- Personalised medicine
- Epigenetics and metagenomics
- Ethics

Possible co-curricular activities

- DNA extraction activity or Bioinformatics practical activity
- Guest speaker from the industry
- Visit to a medical museum such as the Science Museum, Natural History Museum, Wellcome Collection or Alexander Fleming Laboratory Museum

Academic Integrity

By enrolling at FIE, you have joined an academic community and you are expected and required to act honestly regarding the work you submit for assessment in your courses. Academic integrity is closely related to the concept of good academic practice.

Any attempts to Cheat; Fabricate; Plagiarise; Collaborate without Authorisation; Participate in Academically Dishonest Activities; and/or Facilitate Academic Dishonesty will be viewed as a breach of this regulation.

[Please see FIE's Academic Integrity Policy in full.](#)

Most students do not have any problems understanding the rules and expectations about acting honestly at university. If you have any questions you must talk to your faculty or a member of FIE's Academic Team.

Writing and Language Support

FIE's Writing Support Tutors are available to assist students of all levels of expertise with all phases of the writing process. Available year-round and to all students. To book an appointment or for more information visit www.fie.org.uk/wst.

Please note that FIE allows the use of a foreign language/English dictionary in exam situations for students where English is not their primary language UNLESS the use of the dictionary would give the student a significant advantage (e.g. where the exam is aimed at getting the students to define terms that might be found in the dictionary).

Accommodations for Students

Students who wish to use academic accommodations at FIE can register to do so via FIE's Administration Team, by providing the appropriate supporting documentation. Students who have approved FIE academic accommodations should discuss them directly with their faculty member(s) within or around the first few class sessions, or via email. Exams are facilitated by FIE faculty and students should give 2 weeks' notice to faculty members if use of approved exam accommodations is required. The Administration team can assist students and faculty with liaison and facilitation as needed.

Additional Policies and Resources

Mental Health and Stress Management Support

FIE's qualified and accredited counselor is Dr Deborah Hill, who offers appointments via video call and over the phone. The first three appointments are free of charge and ongoing sessions can be arranged directly with Dr Hill. To make an appointment with Dr Hill, simply email studentlife@fie.org.uk.

If you have a counselor from back home that you are seeing, we strongly encourage you to maintain contact with them throughout your time studying abroad with FIE.

Diversity and Inclusivity

FIE regards its housing and classroom facilities as safe spaces to live, study, and work with students, faculty, and staff who are understanding, supportive, and trustworthy. Inappropriate, derogatory comments and/or actions, harassment, bullying, victimisation and discrimination are not tolerated. Any such behaviour will be investigated and dealt with appropriately. Students must be respectful of diverse opinions and of all class members regardless of personal attribute and use inclusive language in written and oral work.