



## 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

<b>Essay</b>	30%	Please see rubric on MyStudy
<b>Research Presentation</b>	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

Alternative formats of the FIE Grading Rubric are available in the Student Resources area of MyStudy@FIE.

	<b>Relevance</b>  Questions are interpreted correctly;  Argument/thesis is clear and developed throughout;  Discussion is focused on topic of the questions;  Irrelevant content and discussion are not included	<b>Knowledge and Understanding</b>  Recommended literature and/or research guidelines are used and interpreted appropriately;  Selection and use of evidence shows understanding and insight;  There is evidence of study beyond the recommended literature and that introduced in the module	<b>Analysis, Critical Thinking and Integration of Experiential Learning</b>  Approach shows evidence of analysis and independent reasoning;  Originality in argument;  Evidence of critical insight and reasoned questioning of assumptions;  Integration of connections and experiences outside of the formal classroom	<b>Scholarship and Style</b>  Conclusions are well justified and complete;  Facts reported and statements made are accurate;  Writing is clear and fluent;  All sources are appropriate, accurately acknowledged and formatted in recognised style;  All work is the student's own
<b>A</b>  93-100%	Totally appropriate interpretation and relevant;  Excellent and thorough thesis development	Comprehensive understanding and mastery of core evidence and extensive wider reading	Excellent analytical skills, outstanding evaluation of evidence, independent and original critical insight;  Meaningfully integrates experiential learning where appropriate	Exceptional fluency and accurate writing using appropriate language, conclusions are well-justified;  Accurate and thorough referencing
<b>A-</b>  90-92%	Almost wholly appropriate interpretation and relevant;  Very strong thesis	Very strong understanding of evidence and clear evidence of appropriate wider reading	Well-developed analytical skills, excellent evaluation of evidence, shows strong critical insight;	Almost wholly accurate and fluent writing using appropriate language,

			Effectively integrates experiential learning where appropriate	conclusions are full and justified; Accurate referencing
<b>B+</b> 87-89%	Appropriate interpretation and relevant; Good thesis throughout	Strong understanding of evidence and appropriate wider reading	Very good analytical skills, strong evaluation of evidence; Shows critical insight; Acknowledges and compares experiential learning and other perspectives	Largely accurate and fluent writing using appropriate language; conclusions are justified; Accurate referencing
<b>B</b> 83-86%	Largely appropriate interpretation and relevant; Thesis is clear	Good understanding of evidence and some appropriate wider reading	Good analytical skills, good evaluation of evidence; Shows critical insight; Acknowledges and compares experiential learning and other perspectives	Largely accurate and fluent writing using appropriate language; Conclusions are justified; Accurate referencing
<b>B-</b> 80-82%	Mostly appropriate interpretation and relevant; Thesis is underdeveloped but clear	Sound understanding of evidence and some wider reading	Sound analytical skills; Sound evaluation of data; Shows some critical judgement identifies experiential connections	Sound level of accuracy and written fluency and some use of appropriate language; Conclusions are coherent; Sound use of referencing conventions

<b>C+</b> 77-79%	Some appropriate interpretation and relevant;  Thesis is underdeveloped and lacks clarity	Evidence is largely understood and some wider reading	Sometimes inconsistent analytical skills;  Some evaluation of data;  Shows some critical judgement though often descriptive;  Identifies experiential connections	Sound level of accuracy and written fluency and some use of appropriate language;  Conclusions are coherent but not fully supported;  Sound use of referencing conventions
<b>C</b> 73-76%	May contain some misinterpretation and/or irrelevant material;  Thesis lacks clarity	Evidence is largely understood;  Limited reading beyond material introduced in module	Mostly inconsistent analytical skills;  Some evaluation of data;  Scant critical judgement mostly descriptive;  Identifies experiential connections	Some level of accuracy and written fluency and some use of appropriate language;  Conclusions are coherent but not fully supported;  Sound use of referencing conventions
<b>C-</b> 70-72%	Limited interpretation and relevance;  Thesis is inconsistent	Weak understanding of evidence;  Limited reading beyond material introduced in module	Mostly inconsistent analytical skills;  Some evaluation of data;  Lacks critical judgement;  Little integration experiential learning	Inconsistent written fluency;  Weak use of appropriate language;  Weak justification for conclusions;  Adequate use of referencing conventions
<b>D</b> 60-69%	Limited interpretation and relevance;  Lacks thesis	Weak understanding of evidence and limited, inappropriate wider reading	Inconsistent and weak analytical skills, poor evaluation of	Inconsistent written fluency;  No justification for conclusions;

			evidence, lacks critical insight;  Little integration of experiential learning	Inaccurate use of referencing
<b>F</b> 0-59%	Significant misinterpretation and irrelevant material	Lacks understanding of evidence and inappropriate or no wider reading	Lacks analytical skills, lacks evaluation of evidence, lacks critical judgement;  Lacks integration of experiential learning	Poorly written with little fluency;  No justification for conclusions;  Poor referencing;  Evidence of plagiarism or inappropriate use of AI

### 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 in advance of the due date from the course instructor. Late work will receive a 5% reduction in points for each 24-hour period handed in past the deadline, including each weekend day. Work submitted a week late will be marked at a C or lower. Any extensions made beyond the last class meeting must be requested in writing to the faculty and include any information on the 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 Bioinformatic 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](http://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 offers mental health support. If students wish to seek this support, including with FIE's counsellor, simply email [studentlife@fie.org.uk](mailto:studentlife@fie.org.uk). If you have a counsellor 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.