



MedTech: Exploring the Human Genome

Discover how advances in the field of genomics are transforming healthcare with this online genomics course.

If your students are completing the whole of this course online and are not participating in the teacher-led lessons based on it, then they can complete useful and engaging activities based on the content covered. You can choose for your students to complete individual tasks by themselves or encourage group work. Though you may have your own ideas about what your students can do with the course content, we've made things easy for you by suggesting some activities that you can submit to your students below. Instructions for the students can be found later in this document.

Individual student tasks taken from the course

Reflection: Students write a 500 word reflection on what they learned from the course, including anything they might do differently now as a result of their learning, and anything additional they found out from their own reading around the topic. They will submit this reflection as a written essay, podcast or video.

Activity: Students look up the terms 'genetics' and 'genomics' then write the definitions in their own words, and outline the difference between them.

Research task: Students research and complete a report on the My Cancer, My DNA project. Reports should include the following:

- The aim of the project
- A description of the process
- The findings
- A summary

Group tasks based on the course

Research task: Groups research the benefits and drawbacks of genomic sequencing/testing and create a presentation. They should take into account ethical considerations, and give relevant examples from the media. Information in Steps 1.11 and 1.12 will be useful sources. Each group then presents their findings and arguments to the other (students could then vote on whether or not they would choose to undergo genomic sequencing themselves).

Discussion task: Groups discuss the following questions and take notes on their responses:

- Drawing on what you have learned in this course so far, what would you tell a patient who was having their genome sequenced?
- What misconceptions do you think they might have, and how would you address these?

The group collects their responses and submit these to the teacher (they could also roleplay the situation if safe/appropriate).

Collaborative task: Groups brainstorm as many different stakeholders in the field of genomics (check understanding of stakeholder if necessary), then complete the exercise in Step 1.9 'Meeting different stakeholders' needs'.

Additional support

You can use the [How to use FutureLearn guide](#) with your students to get them started. There is also a school-facing [Guide to safeguarding and security on FutureLearn](#) if you need it.

Test

You can use the test questions listed in the student instructions below as a short assessment to enable your students to demonstrate what they have learned on the course. The assessment has 15 marks in total.

The questions have been designed to be flexible and open. The questions indicate which steps the answers can be found on. The marks available reflect the likely length and complexity of the answer expected, and how many points they are likely to make. For example, a 5-mark question might reflect a longer, more complex question, or one where they have asked to describe or explain a number of elements. Depending on the level and ability of your students, you can decide how you wish to award the marks so they are appropriate for your class.

Each question suggests which steps the students may wish to return to answer the questions. **You can decide if you want to include this information when you share the assessment with your students.**

Student instructions

Reflection

Write a 500 word reflection of what you have learned from the course. It should include anything you might do differently now because of what you learned, and anything additional you found out in your reading around the topic. Submit this reflection to your teacher as a written essay, podcast or video.

Activity

Look up the terms 'genetics' and 'genomics' then write the definitions in your own words, and outline the difference between them. Submit this to your teacher.

Research task

Research and complete a report on the My Cancer, My DNA project. Reports should include the following:

- The aim of the project
- A description of the process
- The findings
- A summary

Group discussion

Discuss the following questions and take notes on your responses:

- Drawing on what you have learned in this course so far, what would you tell a patient who was having their genome sequenced?
- What misconceptions do you think they might have, and how would you address these?

Submit your group's responses to your teacher.

Group research task

In your group, research the benefits and drawbacks of genomic sequencing/testing and create a presentation. You should take into account ethical considerations, and give relevant examples from the media. Information in Steps 1.11 and 1.12 will be useful sources. Submit your presentations to your teacher.

Group collaborative task

As a group, brainstorm as many different stakeholders in the field of genomics (check understanding of stakeholder if necessary), then complete the exercise in Step 1.9 'Meeting different stakeholders' needs' together. Self-assess using the answers provided.

Test

Complete the assessment questions below to demonstrate your understanding of the course. You can refer back to the course to find the answers or more detail as you need to. You should not however share your answers with other students.

Your answers should be written in full sentences and be appropriately detailed. Make sure you read the questions carefully before starting to answer. Each question shows how many marks are available – use this to guide how much detail or how many points you need to include.

[The questions also indicate where you can start to look to find the answer. You can also include information from other steps if that is relevant.]

1. Define the terms 'genetics' and 'genomics', explaining how they are different. (2 marks) [Step 1.2]
2. List three different stakeholders and their needs in the field of genomics. (6 marks) [Step 1.5]
3. Describe a barrier to wider use of genomic testing in healthcare and how it could be overcome. (3 marks) [Step 1.13]
4. Give two benefits and two drawbacks of genomic sequencing. Consider ethical implications in your answer. (4 marks) [Steps 1.5, 1.10, 2.2 etc]