Changing lives through learning

Access to Higher Education Unit

This unit forms part of an Access to HE Diploma. If delivering the graded version of this unit, please refer to the Provider Handbook for details on grading descriptors and the application of these across units within your programme.

Unit Title: Human Reproduction and Genetics

Graded Unit Reference Number: GA36BIO35

Ungraded Unit Reference Number: UA36BIO35

Module: Biology; Health Studies; Human Biology

Level: Three [3]

Credit Value: Six [6]

Minimum Guided Learning Hours: 60

Units barred for selection against this unit:

- **Human Reproduction (GA33BIO24 / UA33BIO24)**
- **Genetics (GA33BIO06 / UA33BIO06)**

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Understand the structure and functions of the human reproductive systems	1.1 Explain the structure and function, and identify key organs of, the male reproductive system
	1.2 Explain the structure and function, and identify key organs of, the female reproductive system
	1.3 Explain the formation of male and female gametes
	1.4 Explain the process of fertilisation
2. Understand the nature and causes of variation in a population	2.1 Explain the roles of genes and environmental effects (*'nature v nurture'*) in producing variation within a population
	2.2 Explain the difference between mitosis and meiosis and show how meiosis can lead to genetic variation in offspring

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
3. Understand the principles of Mendelian inheritance	3.1 Use genetic diagrams to demonstrate the outcomes of monohybrid inheritance
	3.2 Use genetic diagrams to demonstrate the outcomes of dihybrid inheritance
	3.3 Show how offspring ratios of both monohybrid and dihybrid inheritance pattens contributed to Gregor Mendel establishing his laws of inheritance
4. Understand and demonstrate a range of gene combinations and epigenetics that result in different inherited traits	4.1 Use genetic diagrams to predict the outcomes of inheritance involving all of the following: a) Sex-linkage (e.g., haemophilia) b) Multiple-allele systems (e.g., ABO blood groups) c) Epistasis (e.g., Labrador Retriever hair colour)
5. Know the main stages of embryonic development and the role of the placenta	5.1 Distinguish the main features of embryonic and foetal development
	5.2 Relate the structure of the placenta to its role in the exchange of materials between parent and embryo
6. Understand the role of the endocrine system in the human reproductive system	6.1 Identify and explain the role of hormones associated with the human reproductive system
	6.2 Describe and explain the phases of the menstrual cycle
	6.3 Interpret data relating to the hormonal changes during pregnancy and birth
7. Understand the complexity, challenges, and ethics of research in the field of human reproduction and genetics	7.1 Evaluate the benefits and dilemmas in the use of human twin studies to investigate variation
	7.2 Evaluate the usefulness of gene editing technologies such as CRISPR