

School administrators, Heads of Learning Area – Science and teachers of Human Biology ATAR Year 11 are requested to note for 2023 the following minor syllabus changes. The syllabus is labelled as 'For teaching from 2023'.

Syllabus changes

The content identified by ~~strikethrough~~ has been deleted from the syllabus and the content identified in *italics* has been revised in the syllabus for teaching from 2023.

Unit 1

Science Inquiry Skills

- design investigations, including the procedure(s) to be followed, the materials required, and the type and amount of primary and/or secondary data to be collected; conduct risk assessments; and consider research ethics, ~~including animal ethics~~
- conduct investigations, ~~including monitoring body functions; use microscopy techniques; and perform real or virtual dissection,~~ safely, competently and methodically for the collection of valid and reliable data
- represent data in meaningful and useful ways; organise and analyse data to identify trends, patterns and relationships; qualitatively describe sources of measurement error, ~~and uncertainty,~~ and limitations in data; and select, synthesise and use evidence to make and justify conclusions

Science as a Human Endeavour

- blood transfusions rely on determining blood groups (*ABO and Rhesus*), and can be used to treat many different diseases and conditions
- treatment of conditions due to system or organ dysfunction has changed through improvements in early diagnosis and appropriate use of drugs, physical therapy, ~~radiation therapy,~~ and removal and/or replacement of affected parts

Science Understanding

Cells and tissues

- the cell membrane separates the cell from its surroundings with a structure, described by the fluid mosaic model, which allows for the movement of materials into and out of the cell by *osmosis, simple diffusion, facilitated diffusion* ~~osmosis,~~ active transport and vesicular transport (endocytosis/exocytosis)

Metabolism

- cellular respiration occurs, in different locations in the cytosol and mitochondria, to catabolise organic compounds, aerobically or anaerobically, to ~~release store~~ energy in the form of adenosine triphosphate (ATP)

Digestive system

- digestion involves the breakdown of large molecules to smaller ones by mechanical digestion (teeth, *peristalsis, churning* and bile ~~and peristalsis~~) and chemical digestion (by enzymes with distinctive operating conditions and functions that are located in different sections of the digestive system)

Excretory system

- the excretory system regulates the chemical composition of body fluids by removing metabolic wastes and *regulating* ~~retaining the proper amounts of~~ water, salts, and nutrients; ~~components of this system include the kidneys, liver, lungs, and skin functioning at the organ level~~ (*regulatory processes not required*)

Unit 2

Science Inquiry Skills

- design investigations, including the procedure(s) to be followed, the materials required, and the type and amount of primary and/or secondary data to be collected; conduct risk assessments; and consider research ethics, ~~including animal ethics~~
- represent data in meaningful and useful ways; organise and analyse data to identify trends, patterns and relationships; qualitatively describe sources of measurement error, ~~and uncertainty~~, and limitations in data; and select, synthesise and use evidence to make and justify conclusions

Science as a Human Endeavour

- the use of ~~genetic profiling and genetic screening of adults and embryos to assess the risk of inherited disorders has~~ implicit ethical considerations
- new technologies, including the ~~Pap smear~~ *cervical screening test*, breast screening and blood tests for prostate cancer, have made early detection of cancers possible

Science Understanding

DNA

- protein synthesis involves the transcription of a gene on DNA into messenger RNA ~~ribonucleic acid (RNA)~~ in the nucleus, and translation into an amino acid sequence at the ribosome with the aid of transfer RNA

Human Reproduction

- contraception methods that reduce the probability of the union of gametes or implantation all have limitations, risks and benefits, and include methods that:
 - *use fertility awareness*
 - use steroid hormones
 - use physical barriers between gametes
 - use chemical spermicides
 - use sterilisation (tubal ligation, vasectomy)
 - function after coitus (emergency contraceptive pill and intrauterine devices [IUDs])
- there are a range of techniques available to ~~genetically~~ screen embryos before implantation or during early development, including blood tests, *ultrasound*, amniocentesis and chorionic villi sampling

Types of inheritance

- ~~DNA profiling identifies the unique genetic make up of individuals and can be used in determining parentage~~