

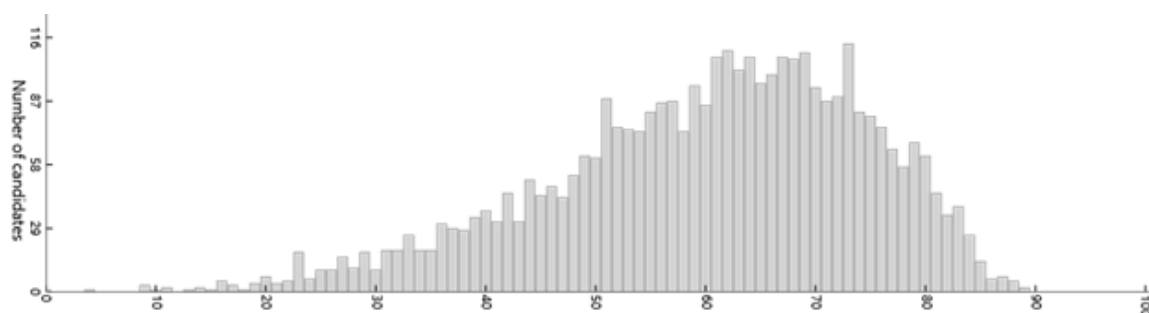


Summary report of the 2023 ATAR course examination report: Human Biology

Year	Number who sat	Number of absentees
2023	3680	62
2022	3791	73
2021	4216	78
2020	4380	64

The number of candidates sitting and the number attempting each section of the examination can differ as a result of non-attempts across sections of the examination.

Examination score distribution



Summary

The examination paper discriminated well between candidates, producing scores from 0.00% to 88.96%. The examination was an appropriate length with most candidates attempting the final questions in the paper. The overall mean of 59.97% was highly comparable with the 2022 mean of 60.06%.

Attempted by 3680 candidates Mean 59.97% Max 88.96% Min 0.00%

Section means were:

Section One: Multiple-choice	Mean 78.34%		
Attempted by 3680 candidates	Mean 23.50(/30)	Max 30.00	Min 0.00
Section Two: Short answer	Mean 53.42%		
Attempted by 3675 candidates	Mean 26.71(/50)	Max 43.69	Min 0.00
Section Three: Extended answer Unit 3	Mean 54.89%		
Attempted by 3626 candidates	Mean 5.49(/10)	Max 10.00	Min 0.00
Section Three: Extended answer Unit 4	Mean 42.73%		
Attempted by 3582 candidates	Mean 4.27(/10)	Max 9.50	Min 0.00

General comments

Candidates were able to demonstrate a thorough knowledge of the Human Biology syllabus. Section One: Multiple-choice was particularly strong, with only a few questions proving to be a challenge to the candidates. In both Sections Two and Three, most candidates could recall basic facts, but only some candidates could effectively answer the in-depth analysis questions.

Advice for candidates

- The examination is based on the syllabus and not a textbook. You should expect a comprehensive coverage of most of the syllabus points in the examination, however not every syllabus point will be examined. Although the same syllabus points may appear in consecutive examinations, questions will be structured in new and different contexts.
- You must read questions carefully to ensure you understand the meaning of verbs used in the question. You need to know the difference between a question requiring you to 'name' or 'identify' compared to one requiring you to 'describe' or 'explain'. Refer to the *Glossary of key words used in the formulation of questions*, which is available online through the course page.
- You are encouraged to try to answer every question. You should always put something down as an answer, even if it is an educated guess. A non-attempt response means no marks can be achieved.
- You need to focus on interpreting the question and providing a succinct answer, rather than simply writing down all you have learnt on a topic. Stating key terminology or a rote learnt response will often not address the entire question. Instead, you need to engage higher-order thinking skills and apply your knowledge.
- The most thorough and complete responses in the Extended answer section of the paper are produced by those who complete a plan. Take time to plan your response and ensure all parts of the question are addressed.
- The question you select in the Extended answer section is very important. You should read the question clearly and predict which of the options will give you the highest possible maximum mark. There may be one part of a question which appears more complex, but that question overall is more accessible and will provide a higher final mark for you.
- You are encouraged to present annotated diagrams, charts, or tables to construct responses to questions in the Short and Extended answer sections. This technique is particularly important in the Extended answer section to help you write clear and precise answers and ensures that markers can easily follow and award marks for your responses.

Advice for teachers

- Students require a detailed knowledge of all syllabus points and the ability to apply these points to new and different contexts. Simple recall and rote learning of facts are not enough for students to gain full marks in the examination. Encourage students to think critically and apply their knowledge to unique scenarios.
- There were several specific syllabus points that were not answered well in this examination. These include:
 - application of the knowledge of natural selection to explain a scenario
 - cell replacement therapy
 - the difference between experimental and control groups in scientific research
 - the purpose of the median and mean in data interpretation
 - role of the adrenal gland in blood glucose regulation
 - interpretation of phylogenetic trees
 - specificity of antibodies
 - how vaccines produce immunity.
- Teachers are reminded that the textbook is not the syllabus. Supplementary teaching is necessary and learning with other references and resource materials beyond the textbook is essential.
- Examination technique should be modelled and reinforced throughout the year during classroom lessons and assessments. Students need to be given ample practise at decoding Extended answer questions as part of their lessons and school-based assessment program. They need substantial practise in breaking down a question and identifying the question components.

- Mathematical skills are a required element in the syllabus document. Students require ample practice at applying all required mathematical skills in a scientific method context.
- There is a general trend that students lack an in-depth understanding of the concepts covered in Unit 4, while their understanding of Unit 3 appears stronger. Differentiated teaching is needed to fully address Unit 4 concepts.

Comments on specific sections and questions

Mean scores in Section One ranged from 0% to 100%. Some questions demonstrated outstanding factual recall of specific syllabus points such as those associated with radiocarbon dating, spinal reflex arcs and pituitary hormones. Section Two had mean scores ranging from 0% to 87%. All six of the Short answer questions were comparable with similar mean scores. Straightforward questions such as skull identification, labelling the parts of the brain, construction of a graph and listing the benefits of bipedalism to survival of hominins proved the most accessible for candidates. Questions that required the application of information within a provided scenario, or explanations of complex processes, were more challenging. For the Unit 3 Extended answer questions, Question 38 on thyroid disorders and blood glucose regulation via the liver was the most effectively answered with a mean of 70.2%, while Question 37 on the negative feedback model and blood glucose regulation via the adrenal glands had a significantly lower mean of 34.2%. The Unit 4 Extended answer questions demonstrated to be the most demanding section of the paper with the lowest overall mean of the four sections. The mean score for Question 40 was 26.9%, considerably lower than Question 39 at 49.5%.

Section One: Multiple-choice (30 Marks)

This section had an overall mean of 78.34%. The maximum mark achieved in this section was 100% and the minimum mark was 0%. Generally, questions were answered well with only Questions 3, 4 and 9 having mean scores at or below 60%. Candidates performed well on Questions 5, 7, 15, 18, 20, 26 and 29 with mean scores all above 90%. Candidates performed well on straightforward recall-style questions and found the more complex, multi-step questions challenging.

Section Two: Short answer (107 Marks)

This section had an overall mean of 53.42%, which is comparable to the mean for the same section in 2022. The maximum mark achieved on the section was 87% and the minimum mark was 0%. Questions 31, 33 and 34 all had mean scores above 55%. Question 34 focused on the application of scientific method skills in the context of hominin skull characteristics and was the most successfully completed question in this section. Question 36 on disease and immunity was the most challenging question of Section Two and the only question with a mean score below 50%, at 46.8%. Throughout the section candidates were able to demonstrate a good recall of basic facts and knowledge. The higher order and application questions were successful in differentiating candidates and provided an opportunity for candidates to demonstrate their understanding of course content. The most difficult questions for the candidates throughout the section were those that required application of theory to explain a new scenario.

Section Three: Extended answer Unit 3 (20 Marks)

This section had an overall mean of 54.89%. The maximum mark achieved on the section was 100% and the minimum mark was 0%. Question 38 was the most successfully answered question with a mean of 70.2%, while Question 37 achieved a mean of 34.2%. Generally, candidates who attempted questions using annotated diagrams and tables were able to construct more precise and understandable responses.

Section Three: Extended answer Unit 4 (20 Marks)

This section had an overall mean of 42.73%. The maximum mark achieved on the section was 95% and the minimum mark was 0%. Question 39 was the more successfully answered question with a mean of 49.5%, while Question 40 had a considerably lower mean of 26.9%. Generally, candidates who attempted questions using annotated diagrams and tables were able to construct more precise and understandable responses.