**Sample Course Outline**

Integrated Science

ATAR Year 11

**Copyright**

© School Curriculum and Standards Authority, 2014

This document – apart from any third party copyright material contained in it – may be freely copied, or communicated on an intranet, for non-commercial purposes in educational institutions, provided that the School Curriculum and Standards Authority is acknowledged as the copyright owner, and that the Authority’s moral rights are not infringed.

Copying or communication for any other purpose can be done only within the terms of the *Copyright Act 1968* or with prior written permission of the School Curriculum and Standards Authority. Copying or communication of any third party copyright material can be done only within the terms of the *Copyright Act 1968* or with permission of the copyright owners.

Any content in this document that has been derived from the Australian Curriculum may be used under the terms of the [Creative Commons Attribution-NonCommercial 3.0 Australia licence](http://creativecommons.org/licenses/by-nc/3.0/au/)

**Disclaimer**

Any resources such as texts, websites and so on that may be referred to in this document are provided as examples of resources that teachers can use to support their learning programs. Their inclusion does not imply that they are mandatory or that they are the only resources relevant to the course.

Sample course outline

Integrated Science – ATAR Year 11

Unit 1 and Unit 2

Unit 1 – Driver safety and hearing

| **Week** | **Key teaching points** |
| --- | --- |

|  |  |
| --- | --- |
| 1 | * Nervous system – brain, spinal cord, nerves, eyes and ears involved in reactions
* Pathway of nerve impulses between neurons
* Driver reaction time
 |
| 2–3 | * Blood alcohol concentration
* Factors affecting stopping distance
* Factors affecting braking distance
* Calculating braking distance

**Task 1:** Test – Nervous system  |
| 4–5 | * Newton’s Laws of Motion
* Effect of collisions on occupants
 |
| 6–7 | * Vehicle safety devices
* Newton’s Laws of Motion and conservation of momentum concepts applied in safety devices
* Analysis of motor vehicle accident statistics
* Educational campaigns for inexperienced driver safety

**Task 2:** Test– Newton’s Laws of Motion**Task 3 :** Investigation –Vehicle safety design  |
| 8–10  | * Sound production and transfer
* Sound waves
* Wave model
* Calculations using
* Acoustic properties of materials

**Task 4:** Test – Sound **Task 5:** Investigation– Acoustic properties of materials  |
| 11–12 | * Hearing
* Detecting frequency (pitch) and amplitude(loudness) and effect of age
* Hearing loss – conductive and nerve
* Effect of loud noise and long exposure to noise

**Task 6:** Investigation – Effect of age on hearing |
| 13–14  | * Hearing aids and cochlea implants

**Task 7:** Extended response – Hearing aids and cochlea implants research assignment**Task 8:** Test – Hearing and impairment |
| 15 | Revision  |
| 16 | **Task 9:** Semester 1 examination |

Unit 2 – Biodiversity and conservation

| **Week** | **Key teaching points** |
| --- | --- |
| 1–2  | * Ecosystem services
* Biodiversity
* Human population growth
 |
| 3–5 | * Key threats to biodiversity
* land clearing
* fragmentation of native ecosystems
* mining
 |
| 6–7 | * altered fire regimes
* introduced species and pathogens
* stock animals

**Task 10:** Extended response – Feral animals in Western Australia research assignment |
| 8–9 | * pollution
* water

**Task 11:** Test – Key threats to biodiversity |
| 10–13 | * Ecosystem interactions
* Ecological monitoring
* Monitoring techniques
* Soil and water quality monitoring

**Task 12:** Practical – Ecosystem monitoring techniques  |
| 13–14 | * Interpreting monitoring data
* Environmental impact statements

**Task 13:** Investigation – Monitoring a local ecosystem **Task 14:** Test – Environmental monitoring  |
| 15 | Revision  |
| 16 | **Task 15:** Semester 2 examination |