



## SAMPLE COURSE OUTLINE

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### INTEGRATED SCIENCE ATAR YEAR 11

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## Sample course outline

### Integrated Science – ATAR Year 11

#### Unit 1 and Unit 2

#### Unit 1 – Driver safety and hearing

Week	Key teaching points
1	<ul style="list-style-type: none"> <li>Nervous system – brain, spinal cord, nerves, eyes and ears involved in reactions</li> <li>Pathway of nerve impulses between neurons</li> <li>Driver reaction time</li> </ul>
2–3	<ul style="list-style-type: none"> <li>Blood alcohol concentration</li> <li>Factors affecting stopping distance</li> <li>Factors affecting braking distance</li> <li>Calculating braking distance</li> </ul> <b>Task 1:</b> Test – Nervous system
4–5	<ul style="list-style-type: none"> <li>Newton's Laws of Motion</li> <li>Effect of collisions on occupants</li> </ul>
6–7	<ul style="list-style-type: none"> <li>Vehicle safety devices</li> <li>Newton's Laws of Motion and conservation of momentum concepts applied in safety devices</li> <li>Analysis of motor vehicle accident statistics</li> <li>Educational campaigns for inexperienced driver safety</li> </ul> <b>Task 2:</b> Test – Newton's Laws of Motion <b>Task 3 :</b> Investigation – Vehicle safety design
8–10	<ul style="list-style-type: none"> <li>Sound production and transfer</li> <li>Sound waves</li> <li>Wave model</li> <li>Calculations using <math>v = f\lambda</math></li> <li>Acoustic properties of materials</li> </ul> <b>Task 4:</b> Test – Sound <b>Task 5:</b> Investigation – Acoustic properties of materials
11–12	<ul style="list-style-type: none"> <li>Hearing</li> <li>Detecting frequency (pitch) and amplitude(loudness) and effect of age</li> <li>Hearing loss – conductive and nerve</li> <li>Effect of loud noise and long exposure to noise</li> </ul> <b>Task 6:</b> Investigation – Effect of age on hearing
13–14	<ul style="list-style-type: none"> <li>Hearing aids and cochlea implants</li> </ul> <b>Task 7:</b> Extended response – Hearing aids and cochlea implants research assignment <b>Task 8:</b> Test – Hearing and impairment
15	Revision
16	<b>Task 9:</b> Semester 1 examination

## Unit 2 – Biodiversity and conservation

Week	Key teaching points
1–2	<ul style="list-style-type: none"> <li>• Ecosystem services</li> <li>• Biodiversity</li> <li>• Human population growth</li> </ul>
3–5	<ul style="list-style-type: none"> <li>• Key threats to biodiversity <ul style="list-style-type: none"> <li>▪ land clearing</li> <li>▪ fragmentation of native ecosystems</li> <li>▪ mining</li> </ul> </li> </ul>
6–7	<ul style="list-style-type: none"> <li>▪ altered fire regimes</li> <li>▪ introduced species and pathogens</li> <li>▪ stock animals</li> </ul> <p><b>Task 10:</b> Extended response – Feral animals in Western Australia research assignment</p>
8–9	<ul style="list-style-type: none"> <li>▪ pollution</li> <li>▪ water</li> </ul> <p><b>Task 11:</b> Test – Key threats to biodiversity</p>
10–13	<ul style="list-style-type: none"> <li>• Ecosystem interactions</li> <li>• Ecological monitoring</li> <li>• Monitoring techniques</li> <li>• Soil and water quality monitoring</li> </ul> <p><b>Task 12:</b> Practical – Ecosystem monitoring techniques</p>
13–14	<ul style="list-style-type: none"> <li>• Interpreting monitoring data</li> <li>• Environmental impact statements</li> </ul> <p><b>Task 13:</b> Investigation – Monitoring a local ecosystem</p> <p><b>Task 14:</b> Test – Environmental monitoring</p>
15	Revision
16	<b>Task 15:</b> Semester 2 examination