



SAMPLE COURSE OUTLINE

MARINE AND MARITIME STUDIES ATAR YEAR 11

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Sample course outline

Marine and Maritime Studies – ATAR Year 11

Unit 1

Science Inquiry Skills

Science Inquiry Skills align with the Science Understanding and Science as a Human Endeavour content of the unit and are integrated into the learning experiences.

- identify, research and construct questions for investigation; propose hypotheses; and predict possible outcomes
- 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 using ecosystem surveying techniques, including line transects, 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
- interpret a range of scientific and media texts, and evaluate processes, claims and conclusions by considering the quality of available evidence; and use reasoning to construct scientific arguments
- select, construct and use appropriate representations, including classification keys to communicate conceptual understanding, solve problems and make predictions
- communicate to specific audiences, and for specific purposes, using appropriate language, nomenclature, genres and modes, including scientific reports

Semester 1

Week	Key teaching points
1–3	Structure of the syllabus <ul style="list-style-type: none"> • course outline • assessment outline Marine: Oceanography <ul style="list-style-type: none"> • properties and characteristics of sea water • location and characteristics of Western Australian marine ecosystems • construction and use of apparatus to measure abiotic factors and methods of measuring biotic factors of a marine ecosystem Task 1: Investigation – Testing for salinity
4–5	Marine: Environmental and resource management <ul style="list-style-type: none"> • salt, seawater, petroleum and gas from the Western Australian marine environment • decisions about whether to and how to extract a resource depends on the value, location and volume of the resource. Consultation and negotiation with local and Indigenous communities is required to further assess impacts on, and costs to, the marine environment and the community of removing the resource (SHE) • Australian Exclusive Economic Zone • human activities may contribute to habitat disturbance within ecosystems. Techniques in conjunction with measurement of abiotic factors, can be used so that a complete picture of the health of an ecosystem and its resilience to change may be obtained (SHE)
6–7	Maritime: Design <ul style="list-style-type: none"> • common craft design features • design features of specific hull designs Task 2: Test – Oceanography and Environmental and resource management

Week	Key teaching points
	Task 3: Investigation – Boat hull design
8–9	Maritime: History and archaeology <ul style="list-style-type: none"> • impact of world trade patterns and historic sea routes on Western Australian coastal exploration • impact of technological advances on navigation and the subsequent consequences for exploration of the Western Australian coastline (SHE) • importance of exploration and mapping of the Western Australian coastline
10–11	Nautical concepts and skills: Power boating <ul style="list-style-type: none"> • trip planning Task 4: Test – Maritime history and archaeology
12–15	Nautical concepts and skills: Power boating <ul style="list-style-type: none"> • rules and regulations • safety equipment • emergency situations • satellite technologies enable the accurate estimation of position fixing, allowing faster response in emergency situations on a global scale (SHE) • collision avoidance • maintenance Task 5: Practical – Deliver a new crew induction briefing Task 6: Practical – Power boating skills test
16	Task 7: Examination

Unit 2

Science Inquiry Skills

Science Inquiry Skills align with the Science Understanding and Science as a Human Endeavour content of the unit and are integrated into the learning experiences.

- identify, research and construct questions for investigation; propose hypotheses; and predict possible outcomes
- 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 using ecosystem surveying techniques, 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
- interpret a range of scientific and media texts, and evaluate processes, claims and conclusions by considering the quality of available evidence; and use reasoning to construct scientific arguments
- select, construct and use appropriate representations, including food webs to communicate conceptual understanding, solve problems and make predictions
- communicate to specific audiences, and for specific purposes, using appropriate language, nomenclature, genres and modes, including scientific reports

Semester 2

Week	Key teaching points
1–4	<p>Marine: Oceanography</p> <ul style="list-style-type: none"> • cycling of nitrogen, carbon and water through a marine ecosystem • interdependence of organisms within a marine ecosystem, including food webs • factors that create ocean currents • global surface ocean currents • global atmospheric circulation systems • identification of cyclical changes in global atmospheric circulation systems require systematic collection and analysis of data to reveal patterns over time (SHE)
5–6	<p>Marine: Environmental and resource management</p> <ul style="list-style-type: none"> • current issues affecting Western Australia’s fisheries • an increase in the number of recreational fishers, together with an increased use of technology have impacted on the stocks of offshore demersal scalefish. Regulatory measures are used to protect stocks, and long-term sampling programs are undertaken, so that predictions can be made about fish numbers in the future (SHE) • modern fish marking together with the parallel development of software to process the data gathered, has meant advances in the knowledge of fish behaviour and management (SHE) • aquaculture solutions to declining fish stocks <p>Task 8: Test – Oceanography Task 9: Extended response – Marine resource management in-class assessment</p>
7–8	<p>Maritime: Design</p> <ul style="list-style-type: none"> • characteristics of maritime construction materials • variation in vessel design according to specific use <p>Task 10: Investigation – Comparing marine construction materials: Conservation</p>
9–10	<p>Maritime: History and archaeology</p> <ul style="list-style-type: none"> • background and location of Western Australian shipwrecks • historical information found within a shipwreck

Week	Key teaching points
	<ul style="list-style-type: none"> • Western Australian law protecting wreck sites • factors that influence the selection of artefacts for conservation and display • historical significance, value, aesthetics, and impact of removal, are determining factors used to influence decisions on conservation and display of maritime artefacts (SHE)
11–13	<p>Nautical concepts and skills: Seamanship skills</p> <ul style="list-style-type: none"> • operating a vessel safely • technological advances in conjunction with historical records and practices influence the methodologies of safe navigation and seamanship (SHE) • using berthing and mooring equipment • tying knots and appropriate use, including: reef, bowline, sheet bend, clove hitch, round turn and two half hitches, coiling, throwing a line, using bitts and cleats • conducting a safety briefing • preparation and starting of motors • skippers logging on and logging off • departing the berth • performing a man overboard • driving a transit • performing a controlled stop • returning to the berth (secures vessel) <p>Task 11: Test – Maritime history and archaeology Task 12: Practical – Rope skills test</p>
14–15	<p>Nautical concepts and skills: Charting skills</p> <ul style="list-style-type: none"> • estimating a position • position fixing: single bearing fix, and triangulations to locate position • performing distance, speed, time calculations • plotting latitude and longitude • reading tide charts, calculating tide heights, calculating tide charts (rule of 12^{ths}) • calculating depth of water under boat • plotting a course • calculating magnetic variation and bearing conversions <p>Task 13: Extended response – Charting skills and passage planning</p>
16	Task 14: Examination