EDTE434

Science in the Secondary School II

S2 Day 2017

Department of Educational Studies

Contents

General Information	2
Learning Outcomes	2
General Assessment Information	3
Assessment Tasks	4
Delivery and Resources	6
Policies and Procedures	7
Graduate Capabilities	8
Changes since First Published	12

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General Information

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Credit points 3
Prerequisites TEP401(S) and (TEP433 or EDTE433)
Corequisites TEP402
Co-badged status
Unit description This unit builds on TEP433. Curricula, resources and instructional strategies appropriate for the teaching of Biology, Chemistry, Physics, and Earth and Environmental Sciences for Senior Science years 11 and 12 are examined. It is linked to the school experience gained in TEP402.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

UO1 a knowledge of the changing policy context of secondary schooling in NSW (Board of Studies, NSWDET) and Australia (ACARA) with specific reference to science;

UO2 the ability to plan and present lesson sequences based on research data collected during the professional experience (TEP 402);

UO3 a developing knowledge of both formal and informal assessment procedures in current use in the NSW Stage 6 science syllabus documents;
UO4 the ability to critique (or reflect on) one's own professional practice with due regard to the input provided by experienced science teacher(s) (TEP402);
UO5 a working knowledge of the relevant syllabus science documents from both the Board of Studies (NSW) and National Curriculum (ACARA) with specific reference to the final years of secondary schooling;
UO6 the ability to interpret research findings both in science and science education and relate these where appropriate to current syllabus documents and to the lives of adolescent students; your understanding of content covered in lectures and tutorials
UO7 to think critically about the potential of information and communication technologies (ICT) to enhance the quality of learning and teaching to engage adolescent students with science;
UO8 a developing understanding of key elements of pedagogy including: the strategies needed to cater for the diversity of learners (including specific equity groups), actively engaging adolescent students in learning, classroom management, beginning and ending lessons, integrating a focus on literacy, developing and selecting resources, questioning, and assessment and evaluation.

General Assessment Information

Submission of assignments

Assignments should be submitted through iLearn (Turnitin). All assignments **MUST** be word-processed.

Referencing

The Department of Educational Studies subscribes to the American Psychological Association (APA) referencing guidelines. You are expected to adopt this referencing approach in your assignments. Use APA for referencing. E.g. the author and year of publication are cited in the body of the text with the complete reference listed in your Reference section. Do not use footnotes for citing references. Students who are unsure of correct referencing procedures should consult the Macquarie University Library Guides. These guides are an essential resource for learning about formatting and referencing. http://libguides.mq.edu.au/c.php?g=674302&p=4748833

Assignment extensions and late penalties

Applications for extensions must be made via AskMQ at https://ask.mq.edu.au as a "Disruption to Studies" request before the submission date. Students who experience a disruption to their studies through ill-health or misadventure are able to apply for this request. *Extensions can only be granted if they meet the Disruption to Studies policy and are submitted via ask.mq.edu.au*.

This will ensure consistency in the consideration of such requests is maintained.

In general, there should be no need for extensions except through illness or misadventure that would be categorised as unavoidable disruption according to the University definition of same, and currently available at:

http://students.mq.edu.au/student_admin/exams/disruption_to_studies/

Late submissions without extension will receive a penalty of 5% reduction of the total possible mark for each day late (including weekends and public holidays). You are reminded that submitting even just 1 day late could be the difference between passing and failing a unit. Late penalties are applied by unit convenors or their delegates after tasks are assessed.

No assessable work will be accepted after the return/release of marked work on the same topic. If a student is still permitted to submit on the basis of unavoidable disruption, an alternative topic may be set.

Students should keep an electronic file of all assessments. Claims regarding "lost" assessments cannot be made if the file cannot be produced. It is also advisable to keep an electronic file of all drafts and the final submission on a USB untouched/unopened after submission. This can be used to demonstrate easily that the assessment has not been amended after the submission date.

Assessment Tasks

Name	Weighting	Hurdle	Due
Animations/simulations	10%	No	1 Sep 2017
Issues/News in the Media	50%	No	11 Oct 2017
Teaching the HSC Options	40%	No	10 Nov 2017

Animations/simulations

Due: **1 Sep 2017**
Weighting: **10%**

To develop science concepts in stage 6 using computer animation/simulation

On successful completion you will be able to:

- UO1 a knowledge of the changing policy context of secondary schooling in NSW (Board of Studies, NSWDET) and Australia (ACARA) with specific reference to science;
- UO5 a working knowledge of the relevant syllabus science documents from both the Board of Studies (NSW) and National Curriculum (ACARA) with specific reference to the final years of secondary schooling;
- UO7 to think critically about the potential of information and communication technologies (ICT) to enhance the quality of learning and teaching to engage adolescent students with science;

Issues/News in the Media

Due: **11 Oct 2017**
Weighting: **50%**

The purpose of this assignment is for you to consider media reports of recent science breakthroughs and their place within the Stage 6 syllabus. This assignment is an opportunity to develop the skill of interpreting research findings in science to relate them to the lives of adolescents.

On successful completion you will be able to:

- UO1 a knowledge of the changing policy context of secondary schooling in NSW (Board of Studies, NSWDET) and Australia (ACARA) with specific reference to science;
- UO2 the ability to plan and present lesson sequences based on research data collected during the professional experience (TEP 402);
- UO3 a developing knowledge of both formal and informal assessment procedures in current use in the NSW Stage 6 science syllabus documents;
- UO5 a working knowledge of the relevant syllabus science documents from both the Board of Studies (NSW) and National Curriculum (ACARA) with specific reference to the final years of secondary schooling;
- UO6 the ability to interpret research findings both in science and science education and relate these where appropriate to current syllabus documents and to the lives of adolescent students; your understanding of content covered in lectures and tutorials
- UO8 a developing understanding of key elements of pedagogy including: the strategies needed to cater for the diversity of learners (including specific equity groups), actively engaging adolescent students in learning, classroom management, beginning and ending lessons, integrating a focus on literacy, developing and selecting resources, questioning, and assessment and evaluation.

Teaching the HSC Options

Due: **10 Nov 2017**
Weighting: **40%**

This part of the assignment has two components – written (30%) and science practical activity (10%). You must complete *both* components.

The purpose of this assignment is for you to become familiar with one of the HSC options.

On successful completion you will be able to:

- UO1 a knowledge of the changing policy context of secondary schooling in NSW (Board of Studies, NSWDET) and Australia (ACARA) with specific reference to science;
- UO3 a developing knowledge of both formal and informal assessment procedures in current use in the NSW Stage 6 science syllabus documents;
- UO4 the ability to critique (or reflect on) one's own professional practice with due regard to the input provided by experienced science teacher(s) (TEP402);
- UO5 a working knowledge of the relevant syllabus science documents from both the Board of Studies (NSW) and National Curriculum (ACARA) with specific reference to the final years of secondary schooling;
- UO7 to think critically about the potential of information and communication technologies (ICT) to enhance the quality of learning and teaching to engage adolescent students with science;
- UO8 a developing understanding of key elements of pedagogy including: the strategies needed to cater for the diversity of learners (including specific equity groups), actively engaging adolescent students in learning, classroom management, beginning and ending lessons, integrating a focus on literacy, developing and selecting resources, questioning, and assessment and evaluation.

Delivery and Resources

Physics

http://www.boardofstudies.nsw.edu.au/hsc/

http://www.boardofstudies.nsw.edu.au/hsc-results/understanding.html

https://www.boardofstudies.nsw.edu.au/syllabus_hsc/pdf_doc/physics-assessment-reporting.pdf

http://www.boardofstudies.nsw.edu.au/syllabus_hsc/physics-assessment-schedule.html

http://www.boardofstudies.nsw.edu.au/syllabus_hsc/exam-changes/pdf_doc/physics.pdf

Chemistry

https://hscstudylab.com.au/teachers

(Stage 6 Biology, Chemistry and Physics – log in details will be provided)

http://www.boardofstudies.nsw.edu.au/syllabus_hsc/pdf_doc/chemistry_stg6_syl.doc

Stage 6 Support Document (2007)

http://www.boardofstudies.nsw.edu.au/syllabus_hsc/pdf_doc/science_revised_support.pdf

Web Elements

http://www.webelements.com/

Chemistry Experiment Simulations, Tutorials and Conceptual Computer Animations

http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/animationsindex.htm

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy_2016.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.m

q.edu.au.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

- UO6 the ability to interpret research findings both in science and science education and relate these where appropriate to current syllabus documents and to the lives of adolescent students; your understanding of content covered in lectures and tutorials
- UO7 to think critically about the potential of information and communication technologies

(ICT) to enhance the quality of learning and teaching to engage adolescent students with science;

Assessment tasks

- Animations/simulations
- Issues/News in the Media
- Teaching the HSC Options

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- UO1 a knowledge of the changing policy context of secondary schooling in NSW (Board of Studies, NSWDET) and Australia (ACARA) with specific reference to science;
- UO2 the ability to plan and present lesson sequences based on research data collected during the professional experience (TEP 402);
- UO3 a developing knowledge of both formal and informal assessment procedures in current use in the NSW Stage 6 science syllabus documents;
- UO5 a working knowledge of the relevant syllabus science documents from both the Board of Studies (NSW) and National Curriculum (ACARA) with specific reference to the final years of secondary schooling;
- UO6 the ability to interpret research findings both in science and science education and relate these where appropriate to current syllabus documents and to the lives of adolescent students; your understanding of content covered in lectures and tutorials
- UO7 to think critically about the potential of information and communication technologies (ICT) to enhance the quality of learning and teaching to engage adolescent students with science;
- UO8 a developing understanding of key elements of pedagogy including: the strategies needed to cater for the diversity of learners (including specific equity groups), actively engaging adolescent students in learning, classroom management, beginning and ending lessons, integrating a focus on literacy, developing and selecting resources,

questioning, and assessment and evaluation.

Assessment tasks

- Animations/simulations
- Issues/News in the Media
- Teaching the HSC Options

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- UO1 a knowledge of the changing policy context of secondary schooling in NSW (Board of Studies, NSWDET) and Australia (ACARA) with specific reference to science;
- UO2 the ability to plan and present lesson sequences based on research data collected during the professional experience (TEP 402);
- UO4 the ability to critique (or reflect on) one's own professional practice with due regard to the input provided by experienced science teacher(s) (TEP402);
- UO5 a working knowledge of the relevant syllabus science documents from both the Board of Studies (NSW) and National Curriculum (ACARA) with specific reference to the final years of secondary schooling;
- UO6 the ability to interpret research findings both in science and science education and relate these where appropriate to current syllabus documents and to the lives of adolescent students; your understanding of content covered in lectures and tutorials
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- UO8 a developing understanding of key elements of pedagogy including: the strategies needed to cater for the diversity of learners (including specific equity groups), actively engaging adolescent students in learning, classroom management, beginning and ending lessons, integrating a focus on literacy, developing and selecting resources, questioning, and assessment and evaluation.

Assessment tasks

- Animations/simulations
- Issues/News in the Media
- Teaching the HSC Options

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- UO5 a working knowledge of the relevant syllabus science documents from both the Board of Studies (NSW) and National Curriculum (ACARA) with specific reference to the final years of secondary schooling;
- UO7 to think critically about the potential of information and communication technologies (ICT) to enhance the quality of learning and teaching to engage adolescent students with science;

Assessment tasks

- Animations/simulations
- Issues/News in the Media
- Teaching the HSC Options

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- UO5 a working knowledge of the relevant syllabus science documents from both the Board of Studies (NSW) and National Curriculum (ACARA) with specific reference to the final years of secondary schooling;
- UO6 the ability to interpret research findings both in science and science education and

relate these where appropriate to current syllabus documents and to the lives of adolescent students; your understanding of content covered in lectures and tutorials

- UO7 to think critically about the potential of information and communication technologies (ICT) to enhance the quality of learning and teaching to engage adolescent students with science;
- UO8 a developing understanding of key elements of pedagogy including: the strategies needed to cater for the diversity of learners (including specific equity groups), actively engaging adolescent students in learning, classroom management, beginning and ending lessons, integrating a focus on literacy, developing and selecting resources, questioning, and assessment and evaluation.

Assessment tasks

- Issues/News in the Media
- Teaching the HSC Options

Changes since First Published

Date	Description
27/07/2017	Assignment Submission dates has been changed.