School of Psychological Sciences

SCIM1040: Foundations of Science and Technology
Callaghan and Ourimbah
Semester 1 - 2024

OVERVIEW

Course Description

Introduces students in the Bachelor of Teaching (Early Childhood and Primary) (Honours) and Bachelor of Teaching (Primary)(Honours) programs to the study of science and technology. The major strands include physical phenomena, living things, information and communications, the earth and its surroundings, products and services, the built environment and introductory computing. It aims to provide students with a good appreciation of science and technology with particular consideration to preparing them to teach the Science and Technology Key Learning Area curriculum to primary school students. This course is structured around lectures, tutorials, and labs.

Requisites

This course replaces SCIM2030. If you have successfully completed SCIM2030 you cannot enrol in this course.

Contact Hours

Computer Lab *
Face to Face on Campus
1 hour(s) per Week for 6 Weeks
See course outline for lab schedule.

Lecture
Online via course Canvas site
2 hour(s) per Week for Full Term starting Week 1

Tutorial *
Face to Face on Campus
1 hour(s) per Week for 9 Weeks

* This contact type has a compulsory requirement.

Unit Weighting
10

Workload
Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10-unit course.

CONTACTS

Course Coordinator	**Callaghan and Ourimbah** Dr Rebecca Allen Rebecca.Allen@newcastle.edu.au Consultation: via zoom by appointment
Teaching Staff	Other teaching staff will be advised on the course Canvas site.
School Office	**School of Psychological Sciences** W210 Behavioural Sciences Building Callaghan psyc-admin@newcastle.edu.au +61 2 4921 5505 **School of Psychological Sciences** Room HO 143 - Humanities Building Ourimbah asu-ourimbah@newcastle.edu.au +61 2 4349 4934

SYLLABUS

Course Content

Topics will be drawn from a range of sciences and technologies including:
1. Built environments regarding structures and spaces that people construct, modify and adapt.
2. Information and communication and related technology and the ways people make, store, organise and transfer images and information.
3. Living things with respect to people, animals, and plants.
4. Physical Phenomena associated with energy, space, and time.
5. Products and Services in which students learn about goods and commodities and the systems used to produce and distribute them.
6. Earth and its surroundings and the resources it provides.
7. Computing literacy with an emphasis on basic applications.

Course Learning Outcomes

On successful completion of this course, students will be able to:
1. Demonstrate sufficient knowledge to allow students to teach in the science and technology key learning area at primary school level.
2. Understand and appreciate the sciences through investigation, examination, interaction, and environmental issues.
3. Show the relationship between science and technology.
4. Demonstrate the nature, scope and importance of communications and information technology; and
5. Develop computing literacy and appreciate the role of computers in education.

Course Materials

Other Resources:
- Resources that may assist you will be made available throughout Semester via the course Canvas site.

COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:
Contact Hour Requirements:
- Computer Lab: There is a compulsory attendance requirement in this course. Students must attend a minimum of five (5) Computer Laboratories to meet course requirements. Science Tutorial: There is a compulsory attendance requirement in this course. Students must attend a minimum of seven (7) Science Tutorials to meet course requirements.

SCHEDULE

Week	Week Begins	Lecture	Tutorial	Laboratory/Workshop
1	26 Feb	Course Introduction and Technology Lecture 1 (Information & Communication) Lecturer: Rebecca Allen	No Science Tutorial	No Technology (Computer) Lab
2	4 Mar	Technology Lecture 2 (Online Communication & Digital Technologies) Lecturer: Rebecca Allen	Science Tutorial 1 (Introduction, Risk Analysis & Scientific Reporting)	Technology (Computer) Lab 1 (Microsoft Excel)
3	11 Mar	Technology Lecture 3 (Computing, Products & Services) Lecturer: Rebecca Allen	Science Tutorial 2 (Space)	Technology (Computer) Lab 2 (Microsoft Excel)
4	18 Mar	Science Lecture 1 (Space) Lecturer: Rebecca Allen	Science Tutorial 3 (Assessment Task Support - Integrated Project)	Technology (Computer) Lab 3 (Assessment Task Support - Integrated Project)
5	25 Mar	Science Lecture 2 (The Universe) Lecturer: Rebecca Allen	No Science Tutorial	No Technology (Computer) Lab
6	1 Apr	Science Lecture 3 (The Earth) Lecturer: Rebecca Allen	No Science Tutorial	No Technology (Computer) Lab
7	8 Apr	Technology Lecture 4 (Design Technologies) Lecturer: Rebecca Allen	Science Tutorial 4 (Space Travel)	Technology (Computer) Lab 4 (Microsoft PowerPoint & Integrated Project)
		Mid Term Break		
		Mid Term Break		
8	29 Apr	Technology Lecture 5 (The Built Environment) Lecturer: Rebecca Allen	Science Tutorial 5 (The Earth)	Technology (Computer) Lab 5 (Robotics & Coding)
9	6 May	Science Lecture 4 (Energy Part 1) Lecturer: Rebecca Allen	Science Tutorial 6 (Energy)	Technology (Computer) Lab 6 (Robotics & Integrated Project Support)
10	13 May	Science Lecture 5 (Energy Part 2, Cells & Genetics) Lecturer: Rebecca Allen	Science Tutorial 7 (Force & Work)	No Technology (Computer) Lab
11	20 May	Science Lecture 6 (Ecology & Evolution) Lecturer: Rebecca Allen	Science Tutorial 8 (Cells & Genetics)	No Technology (Computer) Lab
12	27 May	Science Lecture 7 (The Human Body) Lecturer: Rebecca Allen	Science Tutorial 9 (The Human Body)	No Technology (Computer) Lab
13	3 Jun	Review Lecture Lecturer: Rebecca Allen	No Science Tutorial	No Technology (Computer) Lab
		Examination Period		
		Examination Period		

ASSESSMENTS

This course has 3 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Lab-based Assignment	Part 1 – Week 4 – due by 11.59pm on Friday 22 March 2024 Part 2 – Week 6 – due by 11.59pm on Friday 5 April 2024 Part 3 – Week 12 – due in select weeks following registered Science tutorials	Individual	30%	1, 2, 3, 5
2	Integrated Project	Week 10 – due by 11.59pm on Friday 17 May 2024	Individual	30%	1, 2, 3, 4, 5
3	Final Examination	Formal Exam Period	Individual	40%	1, 3

Late Submissions	The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Lab-based Assignment

Assessment Type	Tutorial / Laboratory Exercises
Purpose	Tutorial / Laboratory Exercises / Multiple Choice Quiz - assessment of concepts and feedback of progress
Description	Part 1 (Technology Quiz) - Online Quiz via course Canvas site (10 multiple choice questions). Content Focus: Microsoft Excel skills developed during Technology Labs in Weeks 2 and 3 (10%). Part 2 (Science Quiz) - Online Quiz via course Canvas site (20 multiple choice questions). Content Focus: Science Lecture 1 and 2 delivered in Weeks 4 and 5 (10%). Part 3 (Science Journal) - Completed after select weekly classes and uploaded to the course Canvas site. Content Focus: Science Tutorial in select weeks from Weeks 2-12. Journal entries are intended to be brief (approx. 250 words each) (10%).
Weighting	30%
Length	Part 1:10 MCQs, Part 2: 20 MCQs, Part 3: 250 words
Due Date	Part 1 – Week 4 – due by 11.59pm on Friday 22 March 2024 Part 2 – Week 6 – due by 11.59pm on Friday 5 April 2024 Part 3 – Week 12 – due by 11.59pm on the Friday following the nominated (registered) Science tutorial – i.e., due by Weeks 4, 8, 10, 11 and 12.
Submission Method	Online (via course Canvas site)
Assessment Criteria	Part 1 - This assignment meets the course objectives of knowledge acquisition and demonstrated assimilation of data, upon reflection and analysis, to produce articulate and concise documents which convey evidence-based understanding of the concepts and topics. Part 2 - This assignment is designed to test the individual student's knowledge of select course material (Science Lectures 1 and 2) and their ability to describe, analyse and hypothesise from this material. Part 3 - This tutorial-based assignment meets the course objectives of demonstrated understanding of the reported study with the correct structure, relevant and accurate information, and quality of written response.
Return Method	Online
Feedback Provided	Online - Parts 1 & 2 - Feedback provided after due date (Your score will be available on completion of the quiz; Question by question feedback will be available once all students have completed the quiz); Part 3 - Feedback provided within 2 weeks of the due date.

Assessment 2 - Integrated Project

Assessment Type	Project
Purpose	Project - assessment of scientific knowledge and technical skills
Description	A multimedia practical project that focuses on the science strands within the Science & Technology KLA. The project brings computer technology and science together.
Weighting	30%
Length	Final product is an 8–10-minute video (.mp4) file
Due Date	Week 10 – due by 11.59pm on Friday 17 May 2024
Submission Method	Online
	Students may directly upload their video file to Canvas via the submission portal or they may upload their video to either YouTube or Dropbox and submit the URL for viewing/marking. It is the student's responsibility to ensure their video file and/or weblink is playing correctly prior to submission.
Assessment Criteria	This practical assessment task meets the course objective related to providing a teaching foundation in the technology strand of the Science & Technology KLA and provides skills and knowledge linked to the course objectives that focus on communications & information and computing literacy. An added feature of this assessment task is that it also allows students to collect and collate resources relevant to their future teaching careers, particularly in the area of science. Students will be required to effectively communicate Science concepts through the use of technology to demonstrate their understanding of both the Science and Technology sections of the course.
Return Method	Online
Feedback Provided	Online - Within 3 weeks of due date. Marks on key metrics as well as constructive comments provided.

Assessment 3 - Final Examination

Assessment Type	Formal Examination
Purpose	Formal Examination - assessment of key course concepts
Description	The Final Exam will be based on lectures and associated reading and activities. Note: the content from Science Lectures 1 & 2 will not be included in the end of semester exam as this has been assessed in the mid-semester Science Quiz.
Weighting	40%
Length	100 multiple choice questions
Due Date	Formal Exam Period
Submission Method	Formal Exam
Assessment Criteria	The final formal examination is designed to test the individual student's knowledge of the course material and their ability to describe, analyse and hypothesise from this material. Marks are awarded in accordance with Table 1 from the Grading Scales in the 2017 Course Management and Assessment Procedure Manual (Policy 000996) at http://www.newcastle.edu.au/policy/000996.html (copy of Grading Scheme provided in this document)
Return Method	Not Returned
Feedback Provided	No Feedback

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a

		high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

Attendance

*Skills are those identified for the purposes of assessment task(s).
Attendance/participation will be recorded in the following components:

- Computer Lab (Method of recording is the University Attendance App). Please note it is the student's responsibility to ensure their attendance has been recorded via the app. Please check your attendance history regularly.

- Tutorial (Method of recording is the University Attendance App). Please note it is the student's responsibility to ensure their attendance has been recorded via the app. Please check your attendance history regularly.

Communication Methods

Communication methods used in this course include:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.

- Email: Students will receive communications via their student email account.

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.
As a result of student feedback, the following changes have been made to this offering of the course:

- In-class assistance for the Integrated Project has been included in the Science Tutorial and Technology Lab program. The intention is to support students in understanding the core requirements of their major project and assist students in getting started with the Project early in Semester.

Oral Interviews (Vivas)

As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the Oral Examination (viva) Procedure. In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the Student Conduct Rule.

Academic Misconduct

All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to
https://policies.newcastle.edu.au/document/view-current.php?id=35.

Adverse Circumstances

The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s).
Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:

1. the assessment item is a major assessment item; or
2. the assessment item is a minor assessment item, and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system.
3. you are requesting a change of placement; or
4. the course has a compulsory attendance requirement.
   Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at:
   https://policies.newcastle.edu.au/document/view-current.php?id=236

Reasonable Adjustment Plan (RAP)	If you are registered with Accessibility and have been provided with a Reasonable Adjustment Plan (RAP), please ensure that you provide your Course Coordinator with a copy as soon you can or let your Course Coordinator know that you are still waiting for your RAP.
Important Policy Information	The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at https://www.newcastle.edu.au/current-students/no-room-for/policies-and-procedures that support a safe and respectful environment at the University.
Other Information	**Risk Assessment and Health & Safety Requirements** The issue of safety for staff and students is taken very seriously by the University. Students studying courses requiring completion of a Risk Assessment Safety Induction or other Health & Safety requirement MUST complete all safety components. These will generally occur in the first week of each course or prior to a placement or field trip. Students will be advised of Risk Assessment and Health & Safety requirements by the Course Coordinator at the beginning of the semester. **Use of AI in the assessments of this course is prohibited** Students must not use AI assistance in any assessments in this course. Any assessment suspected of using AI will be referred to the Student Academic Conduct Officer. The penalty for use of AI in an assessment will be a 0 mark for the assessment (even if AI is found to be used in only a part of the assessment).

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified, and an amended course outline will be provided in the same manner as the original.