



UNSW
SYDNEY

Australia's
Global
University

Built Environment

ARCH1161
Architectural Science and
Building Environment 1



Course Outline – Term 2, 2020

Disclaimer

Information within this document is subject to change. The full and most accurate course outline will be available in Moodle closer to the start of the term in which the course is offered.

1. COURSE STAFF

Course Contact	Dr Philip Oldfield
Email	p.oldfield@unsw.edu.au

2. COURSE DETAILS

Credit Points	6 units of credit (uoc)
Workload	Approx. 150 hours including class contact hours, weekly individual and group online learning activities, readings, class preparation, and assessment activities.
Teaching Times and Location	Find details in timetable http://www.timetable.unsw.edu.au

Description

This course introduces students to the design strategies and scientific understanding needed to minimise buildings' impact on natural resources and the environment. It includes life-cycle thinking in architectural design, a history of environmental design concepts in architecture, understanding and responding to climate, design innovation, solar architecture, building fabric performance and wind, ventilation and cooling. In completing the course, students will master the basic techniques to reduce building-related carbon emissions and enhance human comfort through climate-sensitive design. In addition, they will gain the ability to analyse climatic and geomorphological context to optimise building design for sun, temperature, wind, human metabolism and perception.

Aims

The primary aim of this module is to inform and inspire students to design sustainable, comfortable architecture. It is important to consider that 'building science' and 'environmental design' are not distinct fields separate from architectural design in the studio. You do not design a building and then later consider 'how can I make this comfortable?' Nor is building science only concerned with maths and physics; instead this course looks at how scientific principles should inform the architectural design process. How a building performs environmentally is a key consideration throughout the design process and is intrinsically linked to aesthetics, spatial delight, material selection and more. The hope is this course will foster a passion in students to design sustainable architecture in the studio, and importantly, across their future careers.

Course Learning Outcomes (CLOs)

At the successful completion of this course, you will be able to:

1. Design architecture that integrates relevant environmental design strategies, systems and technologies considering climate, thermal comfort, materials and energy use
2. Evaluate the lifecycle environmental performance of domestic architecture in the Australian context
3. Analyse the characteristics of climate and demonstrate how a building may be planned and constructed to take advantage of that climate to assure the comfort of its occupants
4. Understand the basic regulations and standards that govern environmental performance in buildings in Australia
5. Understand the scientific relationship between nature and buildings, and the need for architects to minimise buildings' impact on natural resources

3. ASSESSMENT

Assessment task	Weight	CLOs Assessed
1. Home Audit 1	20%	2, 4
2. Home Audit 2	40%	1, 2, 3, 4
3. Exam	20%	3, 4, 5

4. COURSE IMPROVEMENT AND FEEDBACK

Feedback from students is an integral part of improving courses and teaching approaches. One of the primary mechanisms of feedback is myExperience, which we strongly urge all students to complete at the end of term. Course convenors use the feedback to make ongoing improvements to the course. This is communicated in Moodle in the myFeedback Matters page.