

ENP203 Urban Climate Theory and Science

School: School of Law and Society

2024 Semester 2

UniSC Sunshine Coast

**BLENDED
LEARNING**

Most of your course is on campus but you may be able to do some components of this course online.

Please go to usc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

Urban (micro)climates differ from surrounding unbuilt environments, and we need to understand these differences to foster better outcomes. In this course you will learn about aspects of urban environments impacting on their climate, and features that make them adaptive to heat and healthy for people. Using thermal cameras, infrared thermometers and weather stations you will collect and analyse data to make evidence-based decisions on climate-responsive design. You will also learn about software and technologies for visualising urban climate as outcomes of urban design and planning decisions.

1.2. How will this course be delivered?

| ACTIVITY | HOURS | BEGINNING WEEK | FREQUENCY |
|---|-------|----------------|-----------|
| BLENDED LEARNING | | | |
| Learning materials – Course content delivered online through learning materials/content in Canvas. | 1hr | Week 1 | 6 times |
| Tutorial/Workshop 1 – On campus tutorial | 2hrs | Week 1 | 6 times |
| Tutorial/Workshop 2 – 2-day intensive on urban climate modelling | 15hrs | Week 7 | Once Only |

1.3. Course Topics

- Climatology and climate change
- Urban microclimate
- Bioclimatic urbanism
- Urban comfort
- Climate classifications
- Types of data for urban climate analysis
- Thermal experience
- Tools for climate data analysis and modelling
- Concepts and guidelines for urban design
- Urban climate policy analysis

2. What level is this course?

200 Level (Developing)

Building on and expanding the scope of introductory knowledge and skills, developing breadth or depth and applying knowledge and skills in a new context. May require pre-requisites where discipline specific introductory knowledge or skills is necessary. Normally, undertaken in the second or third full-time year of an undergraduate programs.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

| COURSE LEARNING OUTCOMES | GRADUATE QUALITIES MAPPING | PROFESSIONAL STANDARD MAPPING * |
|--|---|--|
| On successful completion of this course, you should be able to... | Completing these tasks successfully will contribute to you becoming... | Competencies from multiple Professional Bodies (see below) * |
| 1 Identify climatology principles applied to urban design and town planning | Knowledgeable Empowered | 1, 1.2, 1.4, 1.7, 3.3.1, 3.3.2, 3.3.3, 3.3.5, 3.6.1, 3.3, 13, 13.1.2, 13.1.3, 13.2.2, 13.2.3, 13.2.4, 13.3.1, 13.3.2, 13.3.4, 13.3.5, 13.1, 13.3 |
| 2 Collect and evaluate urban climate data | Knowledgeable Creative and critical thinker Empowered Sustainability-focussed | 1, 1.2, 1.3, 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5, 3.6.1, 3.6.2, 3.3, 3.6, 13.2.1, 13.2.2, 13.2.3, 13.2.4, 13.3.1, 13.3.2, 13.3.4, 13.3.5 |
| 3 Appraise principles of human comfort and health associated with urban climates | Knowledgeable Creative and critical thinker Empowered | 1, 1.2, 1.3, 3, 3.2.3, 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.4, 3.3.5, 3.6.1, 3.6.2, 3.3, 3.6 |
| 4 Apply solutions for improving urban climate performance | Knowledgeable Creative and critical thinker Empowered Ethical Sustainability-focussed | 1, 1.2, 1.3, 1.4, 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5, 3.6.1, 3.6.2, 3.6.3, 3.6.4, 3.3, 3.6, 13, 13.2.1, 13.2.2, 13.2.3, 13.2.4, 13.3.4, 13.3.5 |
| 5 Plan, organise and prepare documents for future reference | Empowered | 1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 3.3.3, 3.3.4, 3.3.5, 3.6.3, 3.6.4, 3.3, 3.6, 11.3.3 |

* Competencies by Professional Body

| CODE | COMPETENCY |
|---------------------------------|---|
| PLANNING INSTITUTE OF AUSTRALIA | |
| 1 | Generic Capabilities and Competencies |
| 1.2 | Perform critical analysis and synthesis |
| 1.3 | Develop and evaluate arguments |
| 1.4 | Apply creative thinking processes to complex problems |
| 1.5 | Make meaningful new connections between challenging, contradictory or unlikely elements |
| 1.6 | Think strategically and apply planning concepts, skills and knowledge in a range of spatial settings |
| 1.7 | Write and present with clarity, cohesion, logic, structure, relevance, accuracy and precision of expression in a range of contexts |
| 1.8 | Effectively use voice, body-language, structure, word choice, graphics, and presentation technologies, across a range of media, appropriate to the knowledge base and cultural background of the audience |
| 3.3.1 | Knowledge of the main principles of sustainable development, ecological systems, resilience and key issues including climate change. |
| 3.3.2 | Knowledge of natural hazards and planning approaches to managing those hazards. |

| CODE | COMPETENCY |
|-------|---|
| 3.3.3 | Capacity to undertake and use environmental impact assessments. |
| 3.3.5 | Capacity to practically and critically link plans into wider frameworks of environmental action and influence at a variety of scales. |
| 3.6.1 | Knowledge of the role of urban design as a discipline in the improvement and management of the public realm and urban spaces and places. |
| 3.3.4 | Capacity to produce basic environmental plans at a level demonstrating understanding of broader principles and policy implementation. |
| 3.6.2 | Capacity to read and understand drawings and plans, including visualisation of the items represented, and to recognise and be able to critique inadequate drawings and representations. |
| 3.6.3 | Capacity to produce basic urban design plans at a level showing understanding of the main components of urban design plan production and implementation. |
| 3.6.4 | Capacity to write policy and draft controls relevant to achievement of urban design outcomes. |
| 3.3 | Environmental Planning |
| 3.6 | Urban Design |

EDUCATION FOR SUSTAINABLE DEVELOPMENT GOALS

| | |
|--------|--|
| 3 | Good Health and Well-being: Ensure healthy lives and promote well-being for all at all ages |
| 3.2.3 | The learner is able to encourage others to decide and act in favour of promoting health and well-being for all. |
| 3.3.4 | The learner is able to publicly demand and support the development of policies promoting health and well-being. |
| 11.3.3 | The learner is able to speak against/for and to organize their voice against/for decisions made for their community. |
| 13 | Climate Action: urgent action to combat climate change and its impacts |
| 13.1.2 | The learner understands the current climate change as an anthropogenic phenomenon resulting from the increased greenhouse gas emissions. |
| 13.1.3 | The learner knows which human activities – on a global, national, local and individual level – contribute most to climate change. |
| 13.2.2 | The learner is able to encourage others to protect the climate. |
| 13.2.3 | The learner is able to collaborate with others and to develop commonly agreed-upon strategies to deal with climate change. |
| 13.2.4 | The learner is able to understand their personal impact on the world's climate, from a local to a global perspective. |
| 13.3.1 | The learner is able to evaluate whether their private and job activities are climate friendly and – where not – to revise them. |
| 13.3.2 | The learner is able to act in favour of people threatened by climate change. |
| 13.3.4 | The learner is able to promote climate-protecting public policies. |
| 13.3.5 | The learner is able to support climate-friendly economic activities. |
| 13.2.1 | The learner is able to explain ecosystem dynamics and the environmental, social, economic and ethical impact of climate change. |
| 13.1 | Cognitive learning objectives for “Climate Action” |
| 13.3 | Behavioural learning objectives for “Climate Action” |

5. Am I eligible to enrol in this course?

Refer to the [UniSC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

Not applicable

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Reflection and review of all content is encouraged in weekly interactive tutorials, and feedback will be given in class. In addition, the course includes an early formative assessment (due in week 3) which is based on readings and class discussions.

6.3. Assessment tasks

| DELIVERY MODE | TASK NO. | ASSESSMENT PRODUCT | INDIVIDUAL OR GROUP | WEIGHTING % | WHAT IS THE DURATION / LENGTH? | WHEN SHOULD I SUBMIT? | WHERE SHOULD I SUBMIT IT? |
|---------------|----------|--|---------------------|-------------|--|-----------------------|--|
| All | 1 | Artefact - Creative, and Written Piece | Individual | 0% | 3 A4 pages | Week 3 | Online Assignment Submission with plagiarism check |
| All | 2 | Literature Review (or component) | Individual | 25% | The content of YOUR writing in the project should be approximately 2000 words (+-10%), which is about 500 words per reading plus your perspective/answers to the given questions. You will also be including the readings you have chosen to discuss, or at least extracts from them. This will make the project useful to you in the coming years as a self-contained document. | Week 5 | Online Assignment Submission with plagiarism check |
| All | 3 | Artefact - Professional, and Written Piece | Group | 35% | 2 slides and a supporting written report of 2000 words (+-10%). Approximately 1000 words should refer to the existing context and 1000 words to the proposed changes. References should be included at the end of the report and do not count towards words limit. | Week 9 | Online Assignment Submission with plagiarism check |
| All | 4 | Activity Participation | Individual | 40% | 2 hours | Week 10 | Online Test (Quiz) |

All - Assessment Task 1: Urban Climate Reader draft proposal

| | |
|-----------------|---|
| GOAL: | This formative assessment should demonstrate your understanding of the requirements for completing Task 2. By week 3 you should have chosen your readings and prepared a reader layout and structure. |
| PRODUCT: | Artefact - Creative, and Written Piece |
| FORMAT: | Three pages showing the layout of your reader, including cover, header, footer, page numbers, etc. Out of these pages: one page (not numbered) is the cover, one page should present the structure of the reader (table of contents), and one page should present the chosen readers (as references). |

| CRITERIA: | No. | Learning Outcome assessed | |
|-----------|-----|----------------------------------|---|
| | 1 | Quality of reader layout | 5 |
| | 2 | Choice of readings | 5 |
| | 3 | Referencing | 5 |
| | 4 | Organisation of reader structure | 5 |

All - Assessment Task 2: Urban Climate Reader

| GOAL: | For this task you will be given a number of academic publications to choose from. You will need to choose at least one publication per topic. These publications will be summarised and used to answer some questions outlined in class during tutorial times. | | |
|-----------------|--|---|---------------------------|
| PRODUCT: | Literature Review (or component) | | |
| FORMAT: | A4 document, submitted online through Canvas as a pdf document. You should consider the layout and design of your project, and use a consistent referencing style (Harvard or APA style). | | |
| CRITERIA: | No. | | Learning Outcome assessed |
| | 1 | Demonstrated understanding of the readings, including key elements of urban microclimate and their role in the overall urban climate performance outcome. | 1 |
| | 2 | Ability to present a critical position in regard to the readings | 1 3 |
| | 3 | Use of diagrams and images to illustrate key ideas | 1 3 5 |
| | 4 | Quality of the reader - including layout and spelling | 5 |

All - Assessment Task 3: Urban Climate Case Study

| GOAL: | Based on existing and on-site collected data, you will analyze the region and site in regards to the effect of their key features in the resulting urban climate. You will then outline recommendations to improve the urban climate performance outcomes. | | |
|-----------------|--|---|---------------------------|
| PRODUCT: | Artefact - Professional, and Written Piece | | |
| FORMAT: | 2 slides and a supporting written report | | |
| CRITERIA: | No. | | Learning Outcome assessed |
| | 1 | Quality of data collection | 2 |
| | 2 | Thoroughness and insightfulness of data analysis | 2 |
| | 3 | Quality of urban design and planning recommendations | 4 |
| | 4 | Quality of posters and written report - including layout and spelling | 5 |

All - Assessment Task 4: Exam

| | | | |
|-----------------|--|--|--|
| GOAL: | To test your understanding of the key concepts and knowledge discussed throughout this course. | | |
| PRODUCT: | Activity Participation | | |
| FORMAT: | Online test | | |

CRITERIA:

| No. | | Learning Outcome assessed |
|-----|--|---------------------------|
| 1 | Understand climatology principles applied to urban design and town planning | 1 |
| 2 | Understand principles of human comfort and health associated with urban climates | 3 |

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

There are no required/recommended resources for this course.

8.2. Specific requirements

Laptop

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for supplementary assessment is dependent on the following conditions applying: (a) the final mark is in the percentage range 47% to 49.4%; and (b) you have not failed an assessment task in the course due to academic misconduct. A supplementary assessment in this course may be an extra case study analysis or an extra exam, depending on the students needs.

10.3. Assessment: Submission penalties

Late submission of assessment tasks will be penalised at the following maximum rate (the rates are cumulative):

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task
- 10% (of the assessment task's identified value) for the third day
- 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task

A result of zero is awarded for an assessment task submitted seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late.

To request an extension, you must contact your Course Coordinator and supply the required documentation to negotiate an outcome.

10.4. SafeUniSC

UniSC is committed to a culture of respect and providing a safe and supportive environment for all members of our community. For immediate assistance on campus contact SafeUniSC by phone: [07 5430 1168](tel:0754301168) or using the [SafeZone](#) app. For general enquires contact the SafeUniSC team by phone [07 5456 3864](tel:0754563864) or email safe@usc.edu.au.

The SafeUniSC Specialist Service is a Student Wellbeing service that provides free and confidential support to students who may have experienced or observed behaviour that could cause fear, offence or trauma. To contact the service call [07 5430 1226](tel:0754301226) or email studentwellbeing@usc.edu.au.

10.5. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the [Learning Advisers](#) web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.6. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to [Student Hub](#), email studentwellbeing@usc.edu.au or call 07 5430 1226.

10.7. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, [AccessAbility Services](#) can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to [Student Hub](#), email AccessAbility@usc.edu.au or call 07 5430 2890.

10.8. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit <https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.9. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The [Student Charter](#) sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.10. General Enquiries

In person:

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au