UNSW Course Outline

CODE3234 Computational Design 5 (Data) - 2024

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General Course Information

Course Code : CODE3234
Year : 2024
Term : Term 1
Teaching Period : T1
Is a multi-term course? : No
Faculty : Faculty of Arts, Design and Architecture
Academic Unit : School of Built Environment
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

In Computational Design 5 (Data) you will apply advanced skills in a visual programming language interface and a text-based programming language of designing parts that operate as part of a system. You will participate to weekly laboratory-based activities to simulate, analyse,

evaluate and design parts (building, roads, functions, etc) that assembles a system like a city. You will also develop your verbal and digital communication skills, particularly with game engines, to present computational design ideas and results.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Critique discourse, policies, case studies of regional and global computational urbanism
CLO2 : Apply computational thinking and methods including a wide range of geospatial data, formats, and modelling to analyse urban sites.
CLO3 : Apply proficient skills in programming to address interoperability challenges for urban data management.
CLO4 : Create digital tools and workflows for the management of urban data.

Course Learning Outcomes	Assessment Item
CLO1 : Critique discourse, policies, case studies of regional and global computational urbanism	• Urban Data
CLO2 : Apply computational thinking and methods including a wide range of geospatial data, formats, and modelling to analyse urban sites.	• Computational Urbanism • Urban Data
CLO3 : Apply proficient skills in programming to address interoperability challenges for urban data management.	• Automating tasks in urban design workflow • Computational Urbanism • Urban Data
CLO4 : Create digital tools and workflows for the management of urban data.	• Automating tasks in urban design workflow • Computational Urbanism

Learning and Teaching Technologies

Moodle - Learning Management System

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Urban Data Assessment Format: Individual	40%	Due Date: Week 4: 04 March - 10 March
Automating tasks in urban design workflow Assessment Format: Individual	40%	Due Date: Week 8: 01 April - 07 April
Computational Urbanism Assessment Format: Individual	20%	Due Date: Week 10: 15 April - 21 April

Assessment Details

Urban Data

Assessment Overview

You will investigate and identify suitable datasets that can assist with urban design decision-making and task automation. You will design and create a computational design workflow that integrates these datasets to automate urban design tasks and to generate data outputs relevant to urban design decision-making. The assessment will include a presentation and a written report.

Feedback will be given through the learning management system and the level of achievement will be indicated against the assignment criteria rubric as well as a section for additional comments. Feedback will also be given verbally in class where applicable.

Course Learning Outcomes

- CLO1 : Critique discourse, policies, case studies of regional and global computational urbanism
- CLO2 : Apply computational thinking and methods including a wide range of geospatial data, formats, and modelling to analyse urban sites.
- CLO3 : Apply proficient skills in programming to address interoperability challenges for urban data management.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Automating tasks in urban design workflow

Assessment Overview

You will identify and develop an Application Programming Interface (API) to automate an urban design task. The task should consider processing the inputs and outputs whilst utilising the identified dataset. The assessment will include a written report, documentation for the API, and the source code for the functions.

Feedback will be given through the learning management system and the level of achievement will be indicated against the assignment criteria rubric as well as a section for additional comments. Feedback will also be given verbally in class where applicable.

Course Learning Outcomes

- CLO3 : Apply proficient skills in programming to address interoperability challenges for urban data management.
- CLO4 : Create digital tools and workflows for the management of urban data.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Computational Urbanism

Assessment Overview

In this assessment, you will demonstrate data interoperabiity and ubiquotous computing by interfacing with your developed Application Programming Interface (API). The demonstration should show the connection protocols, data processing, and output results. The assessment will include a live demonstration of API in presentation, a written report, and relevant documents for API interfacing.

Feedback will be given through the learning management system and the level of achievement will be indicated against the assignment criteria rubric as well as a section for additional comments. Feedback will also be given verbally in class where applicable.

Course Learning Outcomes

- CLO2 : Apply computational thinking and methods including a wide range of geospatial data, formats, and modelling to analyse urban sites.
- CLO3 : Apply proficient skills in programming to address interoperability challenges for urban data management.
- CLO4 : Create digital tools and workflows for the management of urban data.

General Assessment Information

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Lecture	Introduction to Computational Design and Urban Automation
Week 2 : 19 February - 25 February	Lecture	Understanding Urban Design Concepts
Week 3 : 26 February - 3 March	Lecture	Data Collection and Management for Urban Design
Week 4 : 4 March - 10 March	Lecture	Identifying and Accessing Urban Datasets
	Assessment	A1 - Urban Data
Week 5 : 11 March - 17 March	Lecture	Designing and Automating Urban Components
Week 6 : 18 March - 24 March	Lecture	No lecture - Flexibility Week
Week 7 : 25 March - 31 March	Lecture	Identifying and Developing APIs
Week 8 : 1 April - 7 April	Lecture	API Documentation and Source Code
	Assessment	A2 - Automating tasks in urban design workflow
Week 9 : 8 April - 14 April	Lecture	Data Interoperability and Ubiquitous Computing
Week 10 : 15 April - 21 April	Lecture	Live API Demonstration and Final Projects
	Assessment	A3 - Computational Urbanism

Attendance Requirements

You are expected to be regular and punctual in attendance at all classes for the School of Built Environment courses in which you are enrolled. If and where individual courses have specific attendance requirements, these will be stated in the course outline.

If you do not attend, engage, or participate in scheduled class activities, including lectures, tutorials, studios, labs, etc, you run the risk of failing a course.

If illness or unexpected and beyond your control circumstances prevent you from completing a task on time, or substantially disturb your assessment performance, you should apply for Special Consideration, as soon as practicable, accompanied by appropriate documentation.

No special consideration will be provided if you miss out on essential course information and materials, or if you miss assessment tasks and deadlines due to unexplained absences or an unapproved lack of attendance.

You may be advised by the Course Convenor to withdraw from the course if significant learning activities are missed.

Course Resources

Course Evaluation and Development

We encourage and support students to maintain regular contact with the course convenor to provide informal feedback throughout the course. For specific issues or detailed feedback, please arrange a meeting with the course convenor via email.

In this course there is an option for students to provide anonymous feedback via the course's Moodle page, which is directly sent to the convenor. As a final step, students are invited to share their insights and experiences by completing the MyExperience survey. The feedback gathered each year is integral to the continuous enhancement and development of the course.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Daniel Yu				Organise via email	Yes	Yes

Other Useful Information

Academic Information

Due to evolving advice by NSW Health, students must check for updated information regarding online learning for all Arts, Design and Architecture courses this term (via Moodle or course information provided).

Please see: https://www.unsw.edu.au/arts-design-architecture/student-life/resources-support/protocols-guidelines for essential student information relating to:

- UNSW and Faculty policies and procedures;
- Student Support Services;
- Dean's List;
- review of results;
- credit transfer;
- cross-institutional study and exchange;
- examination information;
- enrolment information;
- Special Consideration in the event of illness or misadventure;
- student equity and disability;

And other essential academic information.

Academic Honesty and Plagarism

Plagiarism is using the words or ideas of others and presenting them as your own. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement.

UNSW groups plagiarism into the following categories:

- Copying: Using the same or very similar words to the original text or idea without acknowledging the source or using quotation marks. This includes copying materials, ideas or concepts from a book, article, report or other written document, presentation, composition, artwork, design, drawing, circuitry, computer program or software, website, internet, other electronic resource, or another person's assignment without appropriate acknowledgement.
- Inappropriate paraphrasing: Changing a few words and phrases while mostly retaining the original information, structure and/or progression of ideas of the original without acknowledgement. This also applies in presentations where someone paraphrases another's ideas or words without credit and to piecing together quotes and paraphrases into a new whole, without appropriate referencing.
- Collusion: Working with others but passing off the work as a person's individual work. Collusion also includes providing your work to another student for the purpose of them plagiarising, paying another person to perform an academic task, stealing or acquiring another person's academic work and copying it, offering to complete another person's work or seeking payment for completing academic work.
- Inappropriate citation: Citing sources which have not been read, without acknowledging the "secondary" source from which knowledge of them has been obtained.
- Duplication ("self-plagiarism"): Submitting your own work, in whole or in part, where it has previously been prepared or submitted for another assessment or course at UNSW or another university.

The UNSW Academic Skills support offers resources and individual consultations. Students are also reminded that careful time management is an important part of study. One of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and proper referencing of sources in preparing all assessment items. UNSW Library has the ELISE tool available to assist you with your study at UNSW. ELISE is designed to introduce new students to studying at UNSW, but it can also be a great refresher during your study.

Completing the ELISE tutorial and quiz will enable you to:

- analyse topics, plan responses and organise research for academic writing and other

assessment tasks
- effectively and efficiently find appropriate information sources and evaluate relevance to your needs
- use and manage information effectively to accomplish a specific purpose
- better manage your time
- understand your rights and responsibilities as a student at UNSW
- be aware of plagiarism, copyright, UNSW Student Code of Conduct and Acceptable Use of UNSW ICT Resources Policy
- be aware of the standards of behaviour expected of everyone in the UNSW community
- locate services and information about UNSW and UNSW Library

Use of AI for assessments

As AI applications continue to develop, and technology rapidly progresses around us, we remain committed to our values around academic integrity at UNSW. Where the use of AI tools, such as ChatGPT, has been permitted by your course convener, they must be properly credited and your submissions must be substantially your own work.

In cases where the use of AI has been prohibited, please respect this and be aware that where unauthorised use is detected, penalties will apply.

Use of AI for assessments | UNSW Current Students

Submission of Assessment Tasks

Turnitin Submission

If you encounter a problem when attempting to submit your assignment through Turnitin, please telephone External Support on 9385 3331 or email them on externalteltsupport@unsw.edu.au

Support hours are 8:00am – 10:00pm on weekdays and 9:00am – 5:00pm on weekends (365 days a year). If you are unable to submit your assignment due to a fault with Turnitin, you may apply for an extension, but you must retain your ticket number from External Support (along with any other relevant documents) to include as evidence to support your extension application. If you email External Support, you will automatically receive a ticket number, but if you telephone, you will need to specifically ask for one. Turnitin also provides updates on their system status on Twitter.

Generally, assessment tasks must be submitted electronically via either Turnitin or a Moodle assignment. In instances where this is not possible, alternative submission details will be stated

on your course's Moodle site. For information on how to submit assignments online via Moodle: https://student.unsw.edu.au/how-submit-assignment-moodle

Late Submission Penalty

UNSW has a standard late submission penalty of:

- 5% per calendar day,
- for all assessments where a penalty applies,
- capped at five calendar days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and
- no permitted variation.

Students are expected to manage their time to meet deadlines and to request Special Consideration as early as possible before the deadline. Support with Time Management is available here.

School Contact Information

beadmin@unsw.edu.au