



BLAR14019 Built Environment Research Plan

Term 2 - 2017

Profile information current as at 02/05/2024 10:18 am

All details in this unit profile for BLAR14019 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview

In this unit, you will work and learn autonomously, demonstrate professional capabilities expected of a graduating industry practitioner, formulate and adhere to a research plan, communicate progress, and prepare interim reports and presentations. You will define and scope a research topic by applying detailed technical knowledge and industry based methodologies, assessing safety and risk factors, preparing a feasible plan and drafting an implementation schedule. The unit will give you an opportunity to develop your personal and interpersonal skills and use effectively different modes of communication. Note: Prior to the commencement of term and before an enrolment can be accepted, you must confirm with the unit coordinator that you have identified a suitable research interest and an academic supervisor is available. Students who have successfully completed BLCN14036 or BLSV14012 should not enrol in this unit.

Details

Career Level: *Undergraduate*

Unit Level: *Level 4*

Credit Points: *12*

Student Contribution Band: *8*

Fraction of Full-Time Student Load: *0.25*

Pre-requisites or Co-requisites

Pre-requisite Condition: Successfully completed 126 units of credits in the Building Surveying (Honours) or Construction Management (Honours) course.

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

Offerings For Term 2 - 2017

- Distance

Attendance Requirements

All on-campus students are expected to attend scheduled classes - in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

Class and Assessment Overview

Recommended Student Time Commitment

Each 12-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 25 hours of study per week, making a total of 300 hours for the unit.

Class Timetable

[Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

[Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Presentation and Written Assessment**

Weighting: 30%

2. **Written Assessment**

Weighting: 30%

3. **Presentation and Written Assessment**

Weighting: 40%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the [CQUniversity Policy site](#).

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Moodle Unit Evaluation

Feedback

Except for one student who seems not to be interested in this unit finding it unnecessary and irrelevant to real life, the other 8 students who completed the Unit Evaluation Survey were relatively satisfied with aspects of unit delivery in T1 2017.

Recommendation

This unit was developed to prepare students for conducting a research project i.e. learning to prepare a research plan and consider research methods and strategies for it. We continue to provide updated resources on formulating research questions, research methodology and strategies, data collection methods, and data analysis.

Unit Learning Outcomes

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

1. Formulate and operate a research plan.
2. Apply detailed technical knowledge and industry based methodologies, assess safety and risk factors, and prepare a feasible plan and implementation schedule.
3. Discover and use information sources and technology to collect, analyse and interpret data, notes and references.
4. Practice personal and interpersonal skills.
5. Use effectively different modes of communication.

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Presentation and Written Assessment - 30%	•	•	•	•	•
2 - Written Assessment - 30%	•	•	•	•	•
3 - Presentation and Written Assessment - 40%	•	•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
1 - Communication	•	•	•	•	•

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
2 - Problem Solving	•	•	•	•	•
3 - Critical Thinking	•	•	•	•	•
4 - Information Literacy	•	•	•	•	•
5 - Team Work				•	
6 - Information Technology Competence	•	•	•	•	•
7 - Cross Cultural Competence	•	•	•	•	•
8 - Ethical practice	•	•	•	•	•
9 - Social Innovation					
10 - Aboriginal and Torres Strait Islander Cultures					

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Presentation and Written Assessment - 30%	•	•	•	•	•	•	•	•		
2 - Written Assessment - 30%	•	•	•	•		•	•	•		
3 - Presentation and Written Assessment - 40%	•	•	•	•		•	•	•		

Textbooks and Resources

Textbooks

BLAR14019

Prescribed

Architectural research methods

Edition: 2nd edn (2013)

Authors: Groat, LN & Wang, D

John Wiley and Sons

Southern Gate , Chichester , UK

ISBN: 9780470908556

Binding: Paperback

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- SPSS software

Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Bill Zhao Unit Coordinator

b.zhao@cqu.edu.au

Schedule

Week 1 - 10 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 1. Introduction to academic research	Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.	

Week 2 - 17 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 1. Introduction to academic research	Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.	

Week 3 - 24 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Topic 2. Research Design

Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.

Week 4 - 31 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 2. Research Design	Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.	

Week 5 - 07 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 3. Data collection method	Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.	

Vacation Week - 14 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 21 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 4. Statistical data analysis	Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.	Assessment 1 Due: Week 6 Monday (21 Aug 2017) 11:45 pm AEST

Week 7 - 28 Aug 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 4: Statistical data analysis	Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.	

Week 8 - 04 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 4: Statistical data analysis-exercise example	Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.	

Week 9 - 11 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 5. Qualitative data analysis	Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.	

Week 10 - 18 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 5. Qualitative data analysis	Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.	

Week 11 - 25 Sep 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 6. Writing a Research Report Put it all together	Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.	Assessment 2 Due: Week 11 Wednesday (27 Sept 2017) 11:45 pm AEST

Week 12 - 02 Oct 2017

Module/Topic	Chapter	Events and Submissions/Topic
Topic 6. Writing a Research Report Put it all together	Refer to the Study Guide available from the first week of the term. Check additional weekly resources and recorded lecture uploaded in the Moodle site of the unit under the section for every week.	

Review/Exam Week - 09 Oct 2017

Module/Topic	Chapter	Events and Submissions/Topic
		Assessment 3 Due: Review/Exam Week Tuesday (10 Oct 2017) 11:45 pm AEST

Exam Week - 16 Oct 2017

Module/Topic	Chapter	Events and Submissions/Topic
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Assessment Tasks

1 Assessment 1

Assessment Type

Presentation and Written Assessment

Task Description

OBJECTIVES

This assessment item relates to the course learning outcomes 1, 2, 4 and 5.

Note: Assessment item should be submitted online via "Assessment" in the course Moodle site. Only ONE file (doc, docx) can be submitted.

TASKS

The Global Standards Initiative on Internet of Things defined the **Internet of Things**

(IoT) as "the infrastructure of the information society." The IoT allows objects to be sensed or controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit in addition to reduced human intervention.

You are invited to prepare a report on how IoT impacts architecture, engineering and construction (AEC) industry. The specific tasks include:

1. Refer to relevant literatures (including books, journal articles, and conference proceedings), refer to them and use the Harvard style referencing technique (4%);
2. Explain the potential benefits of IoT to the AEC industry (5%);
3. Identify and explain four possible applications of IoT in the AEC industry (8%);
4. Discuss how these four applications of IoT impact the AEC industry (8%)
5. Identify and explain potential barriers to adopting IoT technologies in the AEC industry (5%).

Note: You should refer to reliable literatures, which should be books, journal articles, and conference proceedings. If you refer to only websites, you will lose many marks. The overall length of the report should be around 2,500 words, excluding references. There is no word limit to each specific task.

Assessment Due Date

Week 6 Monday (21 Aug 2017) 11:45 pm AEST

Return Date to Students

Monday (4 Sept 2017)

Weighting

30%

Assessment Criteria

Task item	Max. Score	Criteria	Breakdown
1	4	Refer to books, journal articles, and conference proceedings	3
		Use the Harvard referencing technique	1
2	5	Explain the potential benefits of IoT to the AEC industry	5
3	8	Identify and explain four possible applications of IoT in the AEC industry	8
4	8	Discuss how these four applications of IoT impact the AEC industry	8
5	5	Identify and explain potential barriers to adopting IoT technologies in the AEC industry	4
Late submissions will be penalized by 5% per calendar day.			
Total	30		30

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

Please refer to the Moodle site for specific assessment submission criteria

Learning Outcomes Assessed

- Formulate and operate a research plan.
- Apply detailed technical knowledge and industry based methodologies, assess safety and risk factors, and prepare a feasible plan and implementation schedule.
- Discover and use information sources and technology to collect, analyse and interpret data, notes and references.
- Practice personal and interpersonal skills.
- Use effectively different modes of communication.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

2 Assessment 2

Assessment Type

Written Assessment

Task Description

OBJECTIVES

This assessment item relates to the course learning outcomes 1 and 3.

Note: Assessment item should be submitted online via "Assessment" in the course Moodle site. Only ONE file (doc, docx) can be submitted.

TASKS

Time and cost overruns have been a common problem in the construction industry. So, industry practitioners would like to know what result in time and cost overruns. A research project will be performed to achieve the following objectives:

- (i) identify the critical factors that cause time and cost overruns in Australian building projects;
- (ii) identify the project player that contributed most to time and cost overruns in Australian building projects; and
- (iii) develop strategies to mitigate time and cost overruns in Australian building projects.

Now, please prepare a report to show how you will design this research to achieve the above three objectives. Your specific tasks include:

1. Describe how you will identify a comprehensive set of the factors that possibly cause time and cost overruns (5%);
2. Elaborate how you will design the research to achieve the three objectives, how you will collect data, and why you will choose these methods (14%);
3. Elaborate how you will analyze data and why you will choose these methods (8%); and
4. Show the possible limitations of your research design (3%).

In your report, you should describe the details of your research design. In Tasks 2 and 3, the data collection and analysis methods should be rigorous and comprehensive enough to achieve the research objectives. The overall word limit is 2500 words.

Assessment Due Date

Week 11 Wednesday (27 Sept 2017) 11:45 pm AEST

Return Date to Students

Week 12 Friday (6 Oct 2017)

Weighting

30%

Assessment Criteria

Task item	Max. Score	Criteria	Breakdown
1	5	Clearly describe a method to identify a comprehensive set of causes of time and cost overruns.	3
		Your method is reasonable and rigorous.	2
2	14	Clearly describe how you will measure the causal factors (i.e. data collection instrument).	5
		Clearly describe how you will collect data, including the population and your detailed sampling method.	6
		Clearly explain why you choose the data collection methods.	3
3	8	Choose appropriate qualitative and quantitative data analysis methods.	4
		Clearly explain why you choose these data analysis methods.	4
4	3	Identify potential limitations of your research plan.	3
Late submissions will be penalized by 5% per calendar day.			
Total	30		30

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

Please refer to the Moodle site for specific assessment submission criteria

Learning Outcomes Assessed

- Formulate and operate a research plan.
- Apply detailed technical knowledge and industry based methodologies, assess safety and risk factors, and prepare a feasible plan and implementation schedule.
- Discover and use information sources and technology to collect, analyse and interpret data, notes and references.
- Practice personal and interpersonal skills.
- Use effectively different modes of communication.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

3 Assessment 3

Assessment Type

Presentation and Written Assessment

Task Description

OBJECTIVES

This assessment item relates to the course learning outcomes 3, 4 and 5.

Note: Assessment item should be submitted online via "Assessment" in the course Moodle site. Only ONE file (doc, docx) can be submitted.

TASKS

A research group is now investigating the factors influencing construction productivity in Australia. The researchers have conducted a questionnaire survey with 33 professionals from 33 different construction projects. In the literature review, the researchers identified five factors that may influence construction productivity in Australia:

A: Design errors;

B: Coordination problems on site;

C: Rework;

D: Change of work scope;

E: Insufficient knowledge and skills of workers

In the survey, the respondents were asked to rate the influence of these five factors using a five-point scale (1=very low; 2=low; 3=neutral; 4=high; 5= very high). The data set is included in the appendix. In this study, the data are assumed to be interval data and normally distributed. The significance level is determined at 5% in this research.

Your specific tasks include:

1. Select an appropriate data analysis method and identify which factor(s) can significantly influence construction productivity. (4%)

2. Select an appropriate data analysis method and identify which factors are significantly correlated? (4%)

3. Ten of the respondents were from large-scaled projects, eleven were from medium-scaled projects, and twelve were from small-scaled projects. Select an appropriate data analysis method and identify which factor(s) received significantly different scores among large, medium and small projects. (12%)

4. The researchers have collected the productivity data ($m^2/\text{man-day}$) before and after the application of BIM in the 33 surveyed projects. Select an appropriate data analysis method and check whether BIM is effective in improving construction productivity. (4%)

5. Please identify four limitations of this research. (8%)

6. Discuss what analysis methods could be used to analyze the cause-and-effect relationships between the factors. (8%)

Note: In your answers to the above questions, you should include the data analysis results from SPSS. Tabulated results are highly recommended. Showing only the name of factors in your answers without any data analysis results is not acceptable, and will make you get zero.

APPENDIX: DATASET OF THIS RESEARCH

Response	Project scale	Factors					BIM adoption	
		A	B	C	D	E	Before	After
1	Large	5	1	3	5	4	0.375	0.450
2	Large	5	1	3	2	5	0.380	0.455

3	Large	5	5	4	2	2	0.381	0.439
4	Large	5	3	5	5	4	0.384	0.441
5	Large	5	1	3	4	5	0.389	0.449
6	Large	5	5	3	5	5	0.395	0.459
7	Large	5	5	3	5	5	0.306	0.498
8	Large	4	5	3	5	5	0.317	0.505
9	Large	5	4	4	4	4	0.319	0.495
10	Large	4	5	1	2	4	0.321	0.401
11	Medium	4	5	2	3	4	0.326	0.408
12	Medium	5	5	4	3	4	0.331	0.413
13	Medium	5	2	4	5	4	0.331	0.350
14	Medium	5	2	5	4	5	0.330	0.340
15	Medium	3	4	4	4	4	0.328	0.330
16	Medium	2	5	3	4	5	0.330	0.340
17	Medium	3	3	3	5	5	0.335	0.340
18	Medium	2	4	3	4	3	0.341	0.361
19	Medium	4	3	3	3	3	0.336	0.350
20	Medium	4	5	4	4	4	0.337	0.340
21	Medium	1	4	4	5	5	0.319	0.336
22	Small	1	2	3	4	4	0.342	0.350
23	Small	4	3	3	2	3	0.344	0.350
24	Small	2	3	3	5	3	0.348	0.352
25	Small	1	4	4	4	5	0.306	0.342
26	Small	5	5	4	5	5	0.317	0.344
27	Small	2	2	4	4	5	0.319	0.348
28	Small	4	4	4	2	4	0.321	0.341
29	Small	2	2	2	2	5	0.306	0.320
30	Small	3	1	4	4	5	0.317	0.348
31	Small	3	1	4	4	5	0.320	0.325
32	Small	3	1	4	2	5	0.330	0.335
33	Small	3	1	4	3	5	0.342	0.351

Assessment Due Date

Review/Exam Week Tuesday (10 Oct 2017) 11:45 pm AEST

Return Date to Students

Exam Week Friday (20 Oct 2017)

Weighting

40%

Assessment Criteria

Task No.	Max. Score	Criteria	Breakdown
1	4	Select an appropriate data analysis method	2
		Data analysis results are correct	2
2	4	Select an appropriate data analysis method	2
		Data analysis results are correct	2

3	12	Select an appropriate data analysis method	4
		Data analysis results are correct	4
		Correctly interpret the results	4
4	4	Select an appropriate data analysis method	2
		Data analysis results are correct	3
5	8	Correctly identify four research limitations (2 for each limitation)	8
6	8	Identify the methods to analyze the cause-and-effect relationships between the factors	3
		Justify the use of the methods	5
Late submissions will be penalized by 5% per calendar day.			
Total	40		40

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

Please refer to the unit Moodle site for specific details regarding the online submission criteria

Learning Outcomes Assessed

- Formulate and operate a research plan.
- Apply detailed technical knowledge and industry based methodologies, assess safety and risk factors, and prepare a feasible plan and implementation schedule.
- Discover and use information sources and technology to collect, analyse and interpret data, notes and references.
- Practice personal and interpersonal skills.
- Use effectively different modes of communication.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?



Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem