



# STAT7900

## Research Frontiers in Statistics

Session 1, Special circumstances 2021

*Archive (Pre-2022) - Department of Mathematics and Statistics*

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#### Disclaimer

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#### Notice

As part of [Phase 3 of our return to campus plan](#), most units will now run tutorials, seminars and other small group activities on campus, and most will keep an online version available to those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face activities for your unit, please go to [timetable viewer](#). To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

## General Information

### Unit convenor and teaching staff

Unit Convenor/Lecturer

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Lecturer

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Credit points

10

Prerequisites

Admission to MRes

Corequisites

Co-badged status

Unit description

This unit covers selected topics in hot research areas of statistics. The topics will be delivered by reading research papers, discussions and presentations. Students are also required to attend department research seminars. Each topic will be taught in two weeks and then assessed by the lecturer delivering the topic.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

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

**ULO1:** demonstrate a broad view on some cutting edge research activities in statistics

**ULO2:** synthesise information from a variety of sources as supporting evidence and discuss them

**ULO3:** communicate credible information in oral, written, graphic or visual forms.

**ULO4:** summarise key messages from research seminars

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Presentation for Topic 1</a>	15%	No	Week 2
<a href="#">Presentation for Topic 4</a>	15%	No	Week 8
<a href="#">Presentation for Topic 2</a>	15%	No	Week 4
<a href="#">Presentation for Topic 3</a>	15%	No	Week 6
<a href="#">Presentation for Topic 5</a>	15%	No	Week 10
<a href="#">Presentation for Topic 6</a>	15%	No	Week 12
<a href="#">Short Report on Statistics Seminars</a>	10%	No	Week 13

### Presentation for Topic 1

Assessment Type <sup>1</sup>: Presentation

Indicative Time on Task <sup>2</sup>: 9 hours

Due: **Week 2**

Weighting: **15%**

Six different advanced topics will be covered in this unit. They are selected from areas of statistical research strength within the Department of Mathematics and Statistics. Each student will present for at least 15 minutes on the topic plus 5 minutes of question time on one of the papers the teaching staff provided and they will be assessed by the teaching staff of that topic. Two core criteria will be used to assess students' work: (1) Understanding of key ideas and concepts. (2) The extent to which work has been written and/or presented in a manner consistent with accepted academic standards.

On successful completion you will be able to:

- demonstrate a broad view on some cutting edge research activities in statistics
- synthesise information from a variety of sources as supporting evidence and discuss them
- communicate credible information in oral, written, graphic or visual forms.

### Presentation for Topic 4

Assessment Type <sup>1</sup>: Presentation

Indicative Time on Task <sup>2</sup>: 9 hours

Due: **Week 8**

Weighting: **15%**

For assessment see Presentation for Topic 1

On successful completion you will be able to:

- demonstrate a broad view on some cutting edge research activities in statistics
- synthesise information from a variety of sources as supporting evidence and discuss them
- communicate credible information in oral, written, graphic or visual forms.

## Presentation for Topic 2

Assessment Type **1**: Presentation

Indicative Time on Task **2**: 9 hours

Due: **Week 4**

Weighting: **15%**

For assessment see Presentation for Topic 1.

On successful completion you will be able to:

- demonstrate a broad view on some cutting edge research activities in statistics
- synthesise information from a variety of sources as supporting evidence and discuss them
- communicate credible information in oral, written, graphic or visual forms.

## Presentation for Topic 3

Assessment Type **1**: Presentation

Indicative Time on Task **2**: 9 hours

Due: **Week 6**

Weighting: **15%**

For assessment see Presentation for Topic 1.

On successful completion you will be able to:

- demonstrate a broad view on some cutting edge research activities in statistics
- synthesise information from a variety of sources as supporting evidence and discuss them
- communicate credible information in oral, written, graphic or visual forms.

## Presentation for Topic 5

Assessment Type <sup>1</sup>: Presentation

Indicative Time on Task <sup>2</sup>: 9 hours

Due: **Week 10**

Weighting: **15%**

For assessment see Presentation for Topic 1

On successful completion you will be able to:

- demonstrate a broad view on some cutting edge research activities in statistics
- synthesise information from a variety of sources as supporting evidence and discuss them
- communicate credible information in oral, written, graphic or visual forms.

## Presentation for Topic 6

Assessment Type <sup>1</sup>: Presentation

Indicative Time on Task <sup>2</sup>: 9 hours

Due: **Week 12**

Weighting: **15%**

For assessment see Presentation for Topic 1

On successful completion you will be able to:

- demonstrate a broad view on some cutting edge research activities in statistics
- synthesise information from a variety of sources as supporting evidence and discuss them
- communicate credible information in oral, written, graphic or visual forms.

## Short Report on Statistics Seminars

Assessment Type <sup>1</sup>: Participatory task

Indicative Time on Task <sup>2</sup>: 12 hours

Due: **Week 13**

Weighting: **10%**

Students are required to attend and compile a short report for at least 6 statistics research seminars. These are not limited to those hosted by the Department of Mathematics and Statistics at Macquarie and can be those hosted by other departments at Macquarie or by other universities/professional organisations. The NSW branch of the Statistical Society Australia (SSA) hold a seminar most months and they are organised as a meetup group which you can subscribe to at <https://www.meetup.com/en-AU/NSW-Branch-of-the-Statistics-Society-of-Australia>.

On successful completion you will be able to:

- summarise key messages from research seminars

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<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

## Delivery and Resources

Topic 1: Monte-Carlo Method

Topic 2: Bayesian Statistics

Topic 3: Biostatistics

Topic 4: Bootstrap Method

Topic 5: Time Series Statistics

Topic 6: Extreme Value Theory

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)

- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## Learning Skills

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

## Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.