AMSI **VACATION** RESEARCH SCHOLARSHIPS **2019–20**

INFORMATION BOOKLET

VRS.AMSI.ORG.AU

Australian Government
Department of Education

AMSI AUSTRALIAN MATHEMATICAL SCIENCES INSTITUTE

INTRODUCTION

Congratulations on receiving a 2019/20 AMSI Vacation Research Scholarship!

This information booklet outlines key components of the scholarship, your research project and AMSIConnect (a two-day student conference where you will present your findings to your VRS peers and supervisors).

AMSI will be in contact in January to confirm travel arrangements for interstate students and provide more information about AMSIConnect.

KEY DATES

Research projects begin *(exact date may vary)*	**1 December 2019**
Students arrive at Queen's College, Melbourne	**10 February 2020**
AMSIConnect	**11 & 12 February 2020**
Students depart Queen's College, Melbourne	**12 February 2020**
Research report and blog due	**28 February 2020**
AMSI VRS 2019/20 projects posted online	**Late March 2020**

RESEARCH REPORT

Your research report should be written in a formal style, as per a scientific journal.

It must adhere to the AMSI Style Guide (included at the end of this booklet) and be submitted on the AMSI Research Project Template (available for download at vrs.amsi.org.au/information-for-students/).

Please submit your research report (after it has been proofed by your supervisor) by **5pm Friday, 28 February 2020** via our online form at tfaforms.com/4796690.

You must supply both a .PDF and Word/Tex file, and the saved files must be named as per the following guide:

LASTNAME_FIRSTNAME_VRS-Report.pdf

Previous examples of completed projects can be found at vrs.amsi.org.au/past-projects/.

CHANGES TO YOUR RESEARCH TOPIC

We understand that minor changes to topics are occasionally required. If you find your project needs alternation in some way, please discuss with your supervisor and email us at vrs@amsi.org.au.

If your project is significantly altered and varies greatly from the research project you initially proposed on your VRS application, permission to proceed must be granted by the AMSI Director and your Head of Department.

BLOG POST

The blog post gives you an opportunity to practice discussing your work with a wider audience. It is becoming increasingly important for researchers to develop skills that enable them to discuss their findings with an audience outside academia.

You may write on *one* of these three topics:

- Your research project
- An area of mathematics that you are interested in
- How/why you became interested in mathematics

Blog posts should be **between 300 and 500 words**, written in a manner accessible to non-specialist audiences.

We have provided some information on how to write an engaging scientific blog at the end of this booklet. Examples of past blogs can also be found at vrs.amsi.org.au/past-projects/.

Please submit your blog post (after it has been proofed by your supervisor) by **5pm Friday, 28 February 2020** via our online form at tfaforms.com/4796690.

Saved files must be named as per the following guide:

LASTNAME_FIRSTNAME_VRS-Blog.docx

A selection of these blogs will be published throughout 2020 on the AMSI VRS site, and we will promote them across our social media channels.

AMSIConnect

AMSIConnect gives VRS students the opportunity to present their research findings. This is a highly valuable exercise that will allow you to practice presenting in a professional conference capacity.

Please note: attendance at AMSIConnect is compulsory and a condition of accepting an AMSI Vacation Research Scholarship. You must attend for the full duration of the event to fulfil this requirement unless formal arrangements have been made with AMSI.

TRAVEL

AMSI will coordinate, book and pay for return economy flights to Melbourne for each VRS student living and completing their project at a university outside of Victoria. These flights will arrive at Melbourne's Tullamarine Airport on Monday 10 February. AMSI representatives will meet students at Tullamarine and provide a private bus service to transport them to Queen's College, The University of Melbourne.

AMSI will send an itinerary to students flying to Melbourne ahead of the travel day.

Please note: VRS students will be responsible for any additional costs associated with changing travel arrangements after confirmation has been provided by AMSI.

ACCOMMODATION

All VRS students (including Melbourne students) will be provided with accommodation at Queen's College for two nights to attend AMSIConnect.

Students will check in on **10 February** and check out on **12 February** 2020.

> **Queen's College**
> The University of Melbourne
> 1–17 College Cres.
> Parkville, Victoria, 3052

Melbourne-based VRS students are required to arrive at Queen's College no later than **5pm Monday, 10 February** to check in.

PRESENTATION GUIDELINES

Each VRS student will be allocated 20 minutes in the conference program and should prepare a **15-minute presentation** of their research. The remaining 5 minutes is for the chair to introduce the speaker, a short question-and-answer session and presentation changeover time. The best presentation, as voted by AMSIConnect attendees, will be awarded a prize.

Student presentations should be supported by a **PowerPoint/LaTeX presentation** using the AMSIConnect Presentation Template (available for download at vrs.amsi.org.au/information-for-students/) and adhering to the AMSI Style Guide (included at the end of this booklet).

SUPERVISOR ATTENDANCE AT AMSIConnect

AMSI strongly encourages VRS supervisors to attend AMSIConnect, in order to provide their student with professional support and to assist with questions if required. We also request that attending supervisors chair at least one session over the two-day conference.

AMSI will send invitations to all supervisors. Students, please speak with your supervisor to invite them to attend.

STAY IN TOUCH

Follow us at @DiscoverAMSI on Facebook and Twitter to stay on top of events, opportunities and general news in the mathematical sciences.

Plus, you can keep an eye out for your own blog post throughout the year, and share it with your friends.

Tag @DiscoverAMSI and #AMSIVRS in status updates and photos from AMSIConnect—we'd love to see what you're up to!

AMSI STYLE GUIDE

BODY TEXT

- Ensure all text is clear, legible and appropriate; i.e. Arial, Calibri, Times New Roman (the standard LaTex font, Computer Modern, is also acceptable)
- Ensure body text is size 12pt font
- Ensure headings are suitably distinguished
- First sentence of first paragraph should be flush with the left-hand margin. All paragraphs thereafter should be indented
- Ensure all figures, graphs and tables are correctly labelled and referenced
- Australian spelling: –ise, **not** –ize
    - e.g. realise, **not** realize
- When referring in the possessive to two people, only place the **'s** after the second name
    - e.g. 'This is demonstrated by Douglas-Richard and Dystra's method.'
- Quoted text should be surrounded by single quotation marks
    - e.g. Einstein famously quoted the following in jest of his peers, 'Do not worry about your difficulties in Mathematics. I can assure you mine are still greater.'
- Quotation marks should be single outer, double inner
    - e.g. 'Then mum said, "Finish your thesis and go to bed," but I ignored her.'

Italics:

- Italicise unfamiliar technical terms that are then immediately defined
    - e.g. 'I started my investigation with *latin square graphs*. A latin square is a square array of numbers…'
    - **Not** 'what I found was that an *infinite* family of latin squares could be constructed'
- Do not italicise all technical terms
    - e.g. generalised quadrangles, **not** *generalised quadrangles,* unless immediately defined
- Do not change fonts when using italics
    - e.g. 'In 1912 Birkhoff introduced the *chomatic polynomial*, which…'
    - **Not** 'In 1912 Birkhoff introduced the $chomatic\ polynomial$, which…'

REFERENCING/CITATION

- Please use consistent, specific citation
- Please use the Harvard (author-date) referencing system
    - e.g. journal referencing
      Author (surname, initial), year, 'Title being referenced,' *Journal*, vol. no, pp. no.
    - e.g. novel referencing
      Author (surname, initial), year, *Title*, edition, publishing house, location.
- When referencing articles in languages other than English, use all original titles
- When referencing articles originally printed in languages other than English, please provide translation following the original title

Examples:

Bessant, J 2001, 'The question of public trust and the schooling system', *Australian Journal of Education*, vol. 45, no. 2, pp. 207-226.

Bessant, J & Webber, R 2001, 'Policy and the youth sector: youth peaks and why we need them', *Youth Studies Australia*, vol. 20, no. 1, pp. 43-47.

Robbins, SP 2004, *Organizational behavior*, 11th edn., Pearson Prentice Hall, Upper Saddle River, NJ.

Robbins, SP & DeCenzo, DA 2004, *Fundamentals of management: essential concepts and applications*, 4th edn, Pearson Prentice Hall, Upper Saddle River, NJ.

Blainey, G 2003a, *Black kettle and full moon: daily life in a vanished Australia*, Penguin/Viking, Camberwell, Vic.

Blainey, G 2003b, *The rush that never ended: a history of Australian mining*, 5th edn., Melbourne University Press, Carlton, Vic.

Original:
Pirandello, L, 1921, *Sei personaggi in cerca d'autore,* 10th Edition, Newton Compton, Perugia.

Translation:
Pirandello, L, trans. Eric Bentley, 1921, *Sei personaggi in cerca d'autore (Six Characters in Search of an Author),* 10th edn., Newton Compton, Perugia.

TIPS ON WRITING YOUR BLOG

1. Find interesting research
You already have interesting research. It's what you will be studying for your VRS Project. But if you would prefer to write about some other area of research that's fine. Or perhaps you would prefer to write about your experience with maths and why you enjoy it so much.

2. Make sure you understand it
We're sure you'll have a deep understanding of your own VRS research, and if you choose another area of research to write about make sure you understand what you're writing about. The better you understand it, the better you'll be able to communicate to your reader.

3. Show why it's interesting first
Tell us what you like about the project: perhaps some interesting applications, something to make it relatable, or interesting to the reader. Do this first so your readers aren't overwhelmed with methods and results first thing.

4. Let the research speak for itself
Don't exclude information because you don't think people will be able to understand it. People want to know all the details, not just the end result, and excluding details will either leave people annoyed because they feel it's too dumbed down, or confused because they don't know how the research came to these conclusions.

5. Don't include details that are only relevant to mathematical scientists
We want these blogs to be accessible to the general public. So don't dumb things down to the extent that the reader feels patronised. Rather, explain the research and results in a way that people without in-depth knowledge of the subject will be able to understand. Try analogies, or explain a practical application. However you chose to do it, try and get the right balance between ease of reading and omission of details.

6. Don't use jargon without explanations
This is not your research report, so be careful about your use of technical language. Basic jargon is fine, but make sure you define any technical terms used within the blog.

7. Tell a story/be creative
This doesn't need to be you spewing out facts onto a page. Make it inventive and creatively use jokes and anecdotes to enhance your article. Perhaps lead the reader through your research, joking about the hiccups you had along the way. This is not a scientific report; you have the freedom to be creative.

8. Don't leave your work open to misinterpretation
Make sure your point of view or argument is the same all the way through. You can certainly provide alternative thoughts, but make sure the overall message is consistent. Remember, you want someone to feel that they understand your ideas and arguments even if they stop reading halfway through.

9. Visuals are great, so use them wisely
Use images well and you will greatly enhance your article, use them badly and you will confuse your readers. Don't just throw in graphs and tables of data unless they are really helping clarify a point. Once again, remember that this article is for the wider community, not just mathematical scientists.

10. Keep it concise
Your blog should be significantly shorter than your report. Keep it concise and don't get bogged down in unnecessary details. It's an interesting blog, not a PhD submission.

11. Cite your sources
This isn't too crucial for those using their own VRS research. But make sure you give credit where it's required, and if you do have some interesting further reading, include it for those who may want additional information.

12. Get your facts straight
Read over your work to make sure all the facts are right, and then perhaps get a friend or family member to read over it to check that the spelling and grammar are correct.

13. Have fun
At the end of the day, this is about making it enjoyable for your readers and the best way to do that is to make it enjoyable for yourself.

Adapted from scienceofblogging.com