Algebraic Geometry
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The vacation project consisted of three parts. The first part was a series of lectures given by Prof Neeman to give a flavour for a number of different areas in mathematics. These areas included analytic number theory (proving the Dirichlet prime number theorem), Galois theory and applications to polynomials, algebraic topology and proving Brewer's fixed point theorem and finally algebraic geometry.

The second part of the scholarship involved selecting an area for further study. I chose algebraic topology, and worked through a textbook on the subject with the help of Prof Neeman. It was a great opportunity to learn about an interesting subject from a great teacher. Topics covered included the fundamental group (van Kampen's theorem, covering spaces), simplicial and singular homology. The study also involved working on some topology and category theory.

The third part involved attending the ICE-EM AMSI summer school. I undertook courses in measure theory, commutative algebra, combinatorial geometry and algebraic geometry. The courses were a great way to sample some of the areas to pursue in honours, as well as giving exposure to areas not taught at my home university.

To conclude, the summer scholarship was a great way to learn in a more relaxed environment, and a good chance to get to know a number of mathematicians from all over Australia (and New Zealand!). I am very thankful for the opportunity that I had to study at ANU.