Young Leaders Program
Inventing the Future
15 January – 02 February 2019, Sydney, Australia

The University of Sydney

We are Australia's first university, with a history of leading new thinking and welcoming people from all social and cultural backgrounds for more than 160 years. We offer the widest range of academic programs of any university in Australia and we are a member of the Group of Eight network of leading Australian research universities. Our main campus is also recognised as one of the most beautiful in the world.

Since our inception, we have believed in education for all and leadership that makes lives better. Our alumni have inspired, led, entertained, challenged and improved the world around them. We have produced six prime ministers, two Nobel Laureates, three astronauts, 110 Rhodes scholars, one Pulitzer Prize winner and 145 Olympic athletes.

Young Leaders Program: Inventing the Future

Inventing the Future (ItF) is an interdisciplinary short course, jointly run by the faculties of Science, Engineering and Information Technologies, Business, and the School of Architecture, Design and Planning at the University of Sydney. The course is aimed at high achieving postgraduate and undergraduate students, to provide them with advanced skills in research translation, design and innovation.

The students will work in teams assigned by the teaching staff and will need to complete a pre-work task (a short report) prior to their arrival in Sydney.

Each team will include members with diverse technical, design and business skills. It encourages students to be highly creative, work in teams, and look beyond their own disciplines to develop solutions that are genuinely novel. The students will also have the opportunity to work with University of Sydney student mentors.

ItF encourages a future-focused approach to innovation, in which problems are addressed from multiple perspectives at once. We ask students to consider these problems in the context of the future. What are the technology, social, environmental and political trends, and what will the future look like in 10 or 15 years? We will leave some room for interpretation in the product briefs, so that students can be creative in choosing the solution with the most impact.

Student teams will be given a real product brief on **Rapid DNA sequencing, trust or air quality,** of social and economic importance, aligned with areas of university research. They must respond to this brief, producing a working prototype product, business case, and presenting to the expert panel at the end of the program.

Program duration

15 January to 02 February 2019

- 15 January   arrive in Sydney
- 16 January   program starts
- 01 February   program ends
- 02 February   depart from Sydney

Participants

The Program is open to students from the University of Sydney's partner universities. We welcome postgraduate and undergraduate students from diverse academic backgrounds to apply, including but not limited to engineering, information technologies, science, health, social sciences, business and design.

Participants will work as a group alongside students from other leading universities with different academic backgrounds and also have the opportunity to interact with University of Sydney student mentors.

Application

- Interested students should complete and submit the Program Application Form to: manager.ilp@sydney.edu.au
- Application closes on **16 October 2018**
- Students will be informed of the decision on their application by 02 November 2018.

Selection criteria

- Motivation for participation
- Relevant experience and extracurricular activities
- Being an individual thinker as well as enjoying working in a team
- Commitment including completion of the group pre-work task prior to course commencement

The course will be conducted in English in an intensive form. Although we will not ask for any evidence of a formal English language assessment, an adequate level of English language ability equivalent to IELTS 6.5, TOEFL iBT 79 or above is essential in order to benefit fully from the program.

Program fee

The program fee of **$4,550 in Australian dollars per student** covers:

- tuition fees
- field trips
- 18 nights shared accommodation (room only) from 15 January to 02 February 2019
  Twin en-suite room (with private bathroom) in a fully furnished student apartment block, inclusive of linen, kitchen packs, internet and all utilities.
- welcome and farewell lunches
- airport group pick-up on 15 January and transfer on 02 February

  Students who are not able to meet the group pick up and transfer time will need to make their own travel arrangements to the accommodation. Travel instructions will be provided.
- Opal card for Sydney public transport with a pre-loading of $10
- Certificate of Attendance and Program Assessment Report (transcript) upon successful completion

Assessment

During the course, students will be assessed on the basis of the pre-work (report), two presentations and program attendance.

For more information

International Leaders Program
Office of Global Engagement
The University of Sydney
Australia

http://sydney.edu.au/about-us/partnerships/international-partnerships/international-leaders-program

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Preliminary Program Schedule

Pre-work (Report)

Students are required to work in teams to complete the Pre-work (a short report) on their choice of project. Students must submit their report by **30 November 2018**.

Mon 14 Jan	Tue 15 Jan	Wed 16 Jan	Thur 17 Jan	Fri 18 Jan
	Arrive in Sydney Group pick up and transfer to accommodation	**AM** Welcome Orientation and course introduction Module Project brief & predicting technology trends	**AM** Module Ideation and design	**AM** Module Business case development
		PM Module User research Group work with USYD mentors	**PM** Module Project management and teamwork Group work with USYD mentors	**PM** Self-study and group work

Mon 21 Jan	Tue 22 Jan	Wed 23 Jan	Thur 24 Jan	Fri 25 Jan
AM 1st Presentation Students present their initial research	**AM** Module Digital Modelling and Fabrication Lab (DMaF): Introduction to 3D modelling and fabrication techniques for rapid prototyping during the early stages of a design process.	**Full day** Self-study and group work With USYD mentors	**AM** Module Technology ideas, intellectual property: student presentation	**Full day** Self-study and group work With USYD mentors
PM Module Presentation skills Self-study and group work			**PM** Module Complex thinking: Introduction to complex and systems thinking	

Mon 28 Jan	Tue 29 Jan	Wed 30 Jan	Thur 31 Jan	Fri 01 Feb
Public Holiday Free time to explore Sydney	**AM** Business case development **PM** Group work With USYD mentors	**Full day** Self-study and group work With USYD mentors	**AM** Pitch presentation Group presentation to the expert panel Closing • Program evaluation • Certificate presentation • Group photo	**Full day** Culture activity

Sat 02 Feb
Depart Sydney

Note: The above is an example of topics and activities that may be arranged for this program and the final schedule will be distributed to participants prior to program commencement.

Project Briefs

- **Rapid DNA sequencing**

Fourth Generation of DNA sequencers are small, and quite cheap. The Oxford Nanopore system can fit in your pocket, only costs ~ US$1000 and can be used for real time sequencing. It's been used for applications from forensics to agriculture to metagenomics. Students in this team will be supplied with a minION sequencer, and will have to develop a viable product idea based on it.

- **Trust**

Changes to our society and business have made trust more central than ever. Trust underpins, or perhaps undermines the sharing economy. It's also key in new technologies that rely on data: the news, authentication, the use of data and privacy. Some of these aspects of trust have technical solutions (eg blockchain, or techniques of authentication,) while others may relate strongly to psychological or social factors, such as mechanisms to encourage better social integration or rates of vaccination. Students in this team will have to identify a problem where lack of trust is having a critical impact, and propose a solution.

- **Air quality**

Poor air quality is one of the leading causes of death in the world, resulting in more than 4 million deaths each year. Greenhouse gas emission into the is central to climate change. These are some of the most critical global problems of our time. Students on this team will identify an aspect of this huge problem where they can have impact. Approaches could include monitoring, filtering, improved chemical processing, or facilitating environmental behavioural changes.