

BIOINFORMATICS TRAINING PROGRAM

Bioinformatics training and literacy program for health and medical researchers in ACT and NSW

Next-generation sequencing (NGS) is now integral to investigating, diagnosing and treating disease. While NGS data can be acquired with ease, capabilities in analysing and translating growing datasets is not keeping pace.



A bioinformatics training program for the ACT and NSW medical community has been launched by Bioplatforms Australia with support from the NSW Office for Health and Medical Research and Intersect Australia. The program aims to enhance research outcomes through hands-on training workshops that will improve the analysis and interrogation of valuable genomics datasets. The program is a response to current skill needs in health and medical research and will seek to meet emerging bioinformatics training needs with new workshops and skilled instructors.

Workshop Content

The Bioinformatics Training Program currently offers workshops for managing and analysing NGS data and metagenomics. All workshops feature hands-on tutorials that demonstrate common analytical workflows and software tools. The emphasis on practical examples enables trainees to develop the skills required to analyse their NGS data as well as more effectively collaborate with bioinformaticians to meet research objectives.

NGS workshop topics:

- NGS technologies
- Introduction to the Unix command line environment
- Introduction to the web based platform, Galaxy
- Data pre-processing and quality analysis
- Sequence alignment of NGS data
- Analytical workflows for RNA-Seq and CHIP-Seq data
- *De novo* assembly of small genomes

Metagenomics workshop topics:

- Amplicon target population structure
- Whole metagenome shotgun processing
- Quality control of metagenomic sequence data
- Gene and functional prediction
- Analysis and visualisation of results
- Identifying enriched gene processes and functions

Target Audience

The workshops have been designed for bench scientists, clinicians and health professionals with little to no bioinformatics experience.

The bioinformatics workshops supported by the NSW Office for Health and Medical Research are only open to individuals working in health and medical research in NSW or ACT-based organisations. Eligibility requirements and registration details are available at www.bioplatforms.com.au/training together with details of workshops for life scientists and those outside NSW and ACT.

Cloud Infrastructure

The training workshops are delivered through the national research cloud being developed by NeCTAR (National eResearch Collaboration Tools and Resources). The NeCTAR research cloud is new infrastructure that delivers remote access to scalable computer power (from a single server to thousands of servers) enabling researchers to share knowledge and computational results with collaborators and to rapidly deploy and access software applications. Intersect Australia



is building the NSW node of the NeCTAR research cloud.

Cloud infrastructure is an important element of the Bioinformatics Training Program as it provides online access to the training platform and the computing power required for the hands-on tutorials. It also enables flexibility in the location of the workshops and allows all researchers to access the training materials.

Building a Trainer Network

To address the scarcity of skilled bioinformatics instructors in Australia, the Bioinformatics Training Program provides mentoring for NSW and ACT trainers and will provide funding for new instructors to attend 'train-the-trainer' programs within Australia or at EMBL-EBI in the UK.

Steering Committee

To remain responsive to the training needs of the health and medical community, management of the Bioinformatics Training Program and community consultations are overseen by a Steering Committee. Committee members represent program sponsors, collaborating institutions and the health and medical community.

Partners and Collaborators

The Bioinformatics Training Program for the NSW and ACT medical community has been made possible with the support of:

- NSW Office for Health and Medical Research
- Intersect Australia
- National Collaborative Research Infrastructure Strategy

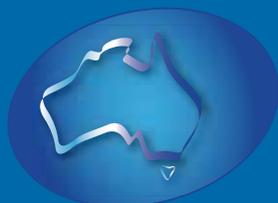
- NeCTAR
- Monash eResearch Centre, Monash University
- NSW Systems Biology Initiative



Further Information

Please see our website for registration and cost details at: www.bioplatforms.com.au/training or contact

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Bioplatforms Australia is a non-profit organisation that supports Australian life science research with crucial investments in state-of-the-art 'omics technologies and cutting edge expertise. Investment funding has been provided through the Commonwealth Government National

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