Career and Relevant-to-Industry Skills Programme (CRISP)

The MacDiarmid Institute for Advanced Materials and Nanotechnology

Frequently asked questions (FAQs) and further information

Updated June 2023

FAQs

Why should I participate?

The skills being developed through CRISP aim to support the likely career paths for MacDiarmid Institute alumni, including academic, industry and government roles. The skills that the CRISP programme imparts are likely to support your career steps in many of the transitions from academia into non-academic roles. Many of them are also essential for academic careers!

How has the list of topics been selected?

The list of topics is intended to provide options to mix and match skills that could help you to enter the career of your choice after completing your PhD. These skills are recognised by employers, so are intended to provide MacDiarmid Institute alumni with a competitive edge in the local and international job market. The programme will also provide new graduates with the tools to take on non-academic roles with the confidence that they can contribute to a company's success as a new employee.

What can we learn from MacDiarmid Institute alumni?

By informally surveying MacDiarmid Institute alumni, we have (as of June 2023) identified 527 destinations of our alumni (MSc, PhD and Postdocs), chiefly those who left the Institute since 2014.

Of these roles (most recent destinations):

- >62% were in New Zealand; around one-third of students were from New Zealand.

- Around one-quarter of these graduates are in 'senior' professional roles.

- Around 45% are academic roles.

In start-ups and industry:

- Around 26% of graduate roles are in industry. Of these, around half are in a multi-national, 63% are technical or scientific roles, and almost one-third are in senior or managerial roles.

- Around 10% were in start-ups, including at least 34 separate companies, and 11 of our own affiliated start-ups.
- Six alumni are CEOs/Founders of MacDiarmid-affiliated start-ups.

In government, professional services and NGOs:

- Around 20% of graduate roles are not in academia or industry. Of these roles, about 38% are scientific / technical and around 32% are senior or managerial.
- We have graduates in (at least) six government ministries.

Recent developments and trends:

- The number of our own affiliated start-up companies continues to grow at 2-3 per year, each likely to be employing (or led by) MacDiarmid alumni.
- We have established an internships programme, which provides work experience for finishing PhD students in Government (public sector) settings (e.g. MBIE, MfE, OPMCSA) as well as in industry.
- We remain in close contact with our alumni network through the LinkedIn group, networking events, Alumni Scholarships, supporting specialised coaching for entrepreneurial alumni, etc.

Feedback from those hosting interns, the interns themselves, and our alumni network has been accounted for while developing CRISP.

Can such short modules make a real difference to my career?

The introduction to each skill set delivered by CRISP will sometimes only scratch the surface. Some professional roles have entire academic and commercial disciplines focused on them. By starting to learn and apply these skills, you will develop a generalist base from which to grow your own career specialisation. In some cases, initial exposure to a topic will help you to make decisions about your own future at a critical time in your career. You will also be introduced to knowledge and networks if you subsequently need to tap into deep expertise.

How are workshops being developed?

Workshops are being co-developed with professional partners (e.g. corporate, investor, professional services, government and University technology transfer offices) to ensure they provide highly relevant and up-to-date approaches on specialist topics. Further, we are endeavouring to identify the best possible facilitators available in NZ for each module, and ensure that content and delivery are co-ordinated between modules. We will shoulder-tap people to assist with co-development, but please let us know about any good people or courses you know of at MI-CRISP@vuw.ac.nz.

Where skills are relevant to multiple types of employers, the content is being developed in a way that highlights different use-cases. E.g. where professional communication for start-ups and corporates

may need generic science communication skills and specific ability to develop investor "Information memoranda" these will be identified and expanded upon.

What is involved in a typical module?

Each module will focus on a particular set of skills. Each will aim to provide entry-level awareness, understanding and tools that enable you to start using these skills immediately and working towards proficiency over time, knowing where to go for further support.

Typically a module will introduce the basic principles of the topic early with some context as to how it relates to selected careers. Tools may be introduced to support participants to apply the concepts being taught e.g. a Gannt chart could be introduced to help a materials characterisation scientist to apply project management to development of a new industrial process.

Modules will use a variety of instructional methods (pedagogies) e.g. small group work, challenging problem-solving, interactivity.

What should I consider when choosing modules?

Modules will not assume any background knowledge. We anticipate that each of our students will find some topics of relevance or interest, and will be able to identify a range of skills that fit with their career aspirations. That is, you should choose both:

- Modules in which you know you have an interest, and would like to build your skills; and
- Modules in areas which you would like to find out more about.

If you already have a strong knowledge base in an area covered by a particular module, you may wish to check before signing up that the content will make a meaningful progression for you. To do this, or if you have any other questions to help you understand how to plan your participation, please contact MI-CRISP@vuw.ac.nz.

Will there be selection of students for workshops?

Due to capacity constraints, we may have to limit the attendance at some of the modules. We will attempt to accommodate preferences as far as possible, while managing oversubscribed or undersubscribed topics in a fair manner. Some workshops will be held in parallel with MacDiarmid Institute Symposia, and our aim is to provide modules with less limited capacity in those workshops.

How will travel and emissions be considered in selection?

Attendance at a selection of modules within each workshop will be supported. However, some preference may be given to those enrolling in more than one module within a multi-day workshop in order to minimise travel budget and related CO_2 emissions.

How will equity be considered in selection and programme design?

In keeping with our commitment to supporting equity and diversity, we encourage participation in CRISP from all individuals, and maintaining diversity may be a factor in selection of students for specific modules.

We will also ensure consideration of equity and diversity in all planning, subject matter partner selection, co-development and delivery of the modules. We are conscious of potential inequities relating to geographical location, and the balance we must strike with minimising transport emissions. If you have any specific concerns or suggestions about equity or diversity in CRISP, please let us know by contacting MI-CRISP@vuw.ac.nz.

Do I need my PhD supervisor's agreement to participate?

You should discuss and plan your participation in CRISP with your academic supervisor(s). Your MacDiarmid Institute academic supervisor(s) should be familiar with the requirements of CRISP, and you can expect their support for participation in Institute activities like this programme. For information about what you should expect from your supervisor and how to manage expectations with them, please see our Supervisory Expectations and Supervision Policy documents.

How do I balance my time for research/PhD work and these courses?

Remember that participation in any particular module is entirely optional. Each individual module attended will be recognized by the Institute, and we recommend a maximum participation of 12 days over a 2-year period. Again, your participation in CRISP should be discussed and planned with your academic supervisor(s).

Why is the MacDiarmid Institute offering CRISP?

The Institute has a longstanding interest in contributing to the economic and social wellbeing of New Zealand. One of the most important ways we do this is by producing graduates who can add significant value - see our alumni profile above. To assist New Zealand to address the complex challenges faced by society, including sustainability, our graduates should be equipped to use their scientific capabilities in New Zealand companies, and within government and other institutions that can make a positive impact. In this way, the scientific training provided by the MacDiarmid Institute will help to deliver many of the productivity, sustainability, economic and social goals NZ needs to achieve to thrive as a society.

Although our graduates typically have the technical skills to thrive outside of academia, the transition from a pure research degree can be daunting. To help with this transition, and to encourage participation in particular activities such as start-ups, the Institute has often provided training and development opportunities on an *ad hoc* basis, or through the Future Leaders' Programme (FLP). CRISP (which replaces the FLP) will structure and formalise these training opportunities.

How will participation be recorded and certified?

Your participation will be monitored via our online registration and attendance verification processes. Modules will not be assessed and only your participation will be reported. Participants will earn a customised virtual badge for participation in each opt-in module, distributed via the global Badgr platform (https://badgr.com). These badges can be attached to your LinkedIn profile, and the MacDiarmid Institute will record and attest to the badges obtained by each student. There will be approximately 15 modules on offer in total over a 2-year period, and the more the merrier when it comes to badges! As we introduce these badges, we are also removing the previous target we had to 'complete' the CRISP programme, which is not appropriate due to potential constraints on capacity. Participation in CRISP is intended to be included on your CV, and endorsed by the MacDiarmid Institute, but will not (at this stage) form part of any academic transcript.

What will it cost?

There will be no personal costs incurred by the student. The MacDiarmid Institute will cover travel, accommodation and course costs from central funds. Some expenses may be met by the academic supervisor's funds (e.g. travel to a Symposium which includes a workshop).

Will there be support for childcare, or similar issues affecting access?

Childcare and other support will be made available and (within reason) funded. Please let us know plans, requirements or concerns at the time of application for a module, or talk to your supervisor.

Tell me more about the selected range of skills.

See "Topics and Skills" below for a full listing of the planned modules. For graduates to thrive in their early career it helps to have a skillset that maximises the impact of scientific training while interacting with academic and non-academic colleagues and teams. The skills offered in CRISP include:

- the ability to plan, scope, deliver and manage a project;
- communicating effectively with professional audiences of all types;
- skills required to work within government and the public sector;
- financial literacy for start-up, corporate and project budgeting purposes (including academic projects);
- identifying and pursuing science-based start-up opportunities and industry partnerships with confidence.

Tell me more about how these skills will assist me in my career.

The main focus of the programme is to develop skills that are valued by the types of companies, industries and entities which employ trained scientists, including employers such as Government, research groups and professional services. Typically a person operating in any such organization relies on a wide range of skills to function effectively and practice at the top of their field.

The programme content is developed to respond to international and local moves towards highly flexible careers, with transferable skills and a strong lifelong learning underpinning successful career progression. So, while many of the skills are focused on commercial and industry requirements, each module will identify how they can be applied in a range of careers. For example, a module on science-market fit may enhance your ability to write scientific grant proposals.

Consider this extended example of a leader of an R&D facility within one of New Zealand's top high-value manufacturing firms.

- They will rely heavily on their technical or scientific knowledge.

- They would also need to carry out a range of non-technical functions to ensure a productive environment within their team, such as:

  ○ provide regular clear communication to their senior leadership team;

  ○ manage their R&D team dynamics effectively;

  ○ interact with the finance department about progress against financial targets;

  ○ set project targets and manage projects to achieve these;

  ○ ensure IP is recognised, protected and leveraged by the team and company as a whole;

  ○ and regularly make or contribute to challenging decisions about actions to be taken across each of these seemingly separate functions.

Topics and Skills

The module topics that have been delivered so far give an indication of the scope of CRISP. Future modules are work in progress(!) but will definitely include a session introducing Māori culture, society and economy in November 2023.

Investment Dynamics for Science-Based Start-Ups (17 March 2022, hybrid)
- Delivered by Bridgewest Ventures

Sustainability of Products, Processes and Business Models through Advanced Materials (17 March 2022, hybrid)
- Delivered by the Sustainable Business Network

The Friendly TTO (30 June 2022, hybrid)

- Delivered by representatives from Technology Transfer Offices across the Institute's network

Developing Healthy Habits for Resilience and Wellbeing in the Workplace (7 July 2022)
- Delivered by Julene Hope of Bright Spot Consulting

Creating Personal Impact in the Workplace (30 November 2022, Wellington)
- Delivered by professional facilitators Lisa Allen and Lucy Fookes

Project Management Skills for Your Future Career (30 November 2022, Wellington)
- Delivered by three professional New Zealand-based project managers.

How to Budget and Spend for Research Success (27 June 2023, Christchurch)
- Ensuring successful financial management of R&D projects.
- Delivered by EY.

Building your Personal Effectiveness (28 June 2023, Christchurch)
- Practical steps towards elevating your performance, productivity, and wellbeing in the modern workplace.
- Delivered by Rachel King, an effective NZ-based facilitator from PEP Worldwide

Deep Tech Hackathon (28 June 2023, Christchurch)
- Rapid, fun, and focused on software design and coding solutions for company challenges.
- Delivered by a range of industry participants, co-ordinated by Ben Reid

The Product Development Lifecycle (29 June 2023, Christchurch)
- Understanding how R&D is planned and executed from an idea through to launch.
- Delivered by three industry experts.