POSITION DESCRIPTION

THE UNIVERSITY OF MELBOURNE

School of Ecosystem and Forest Sciences
Faculty of Science

Programmer (Scientific Software)

POSITION NO	0043884
CLASSIFICATION	Level A
SALARY	$69,148 - $93,830 p.a. (*PhD entry level - $87,415 p.a.)
SUPERANNUATION	Employer contribution of 9.5%
WORKING HOURS	Full-time
BASIS OF EMPLOYMENT	Fixed-term for two years
OTHER BENEFITS	http://about.unimelb.edu.au/careers/working/benefits
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers, select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
CONTACT FOR ENQUIRIES ONLY	Trent Penman Tel +61 3 5321 4196 trent.penman@unimelb.edu.au *Please do not send your application to this contact*

For information about working for the University of Melbourne, visit our website:
about.unimelb.edu.au/careers

Position Summary

In 2010, the Department of Environment, Land, Water and Planning (DELWP) and the University of Melbourne (UM) established the Integrated Forest Ecosystem Research (IFER) Agreement to collaboratively meet DELWP's policy and operational research needs. IFER targets a range of pertinent and overarching core themes at the landscape scale, the scale at which management regimes are applied. The themes include forest biodiversity, carbon, socio-economics, water, hazards, vulnerability and health.

IFER's development of robust science and data sets now provides a unique opportunity for UM and DELWP to bring together the advances in knowledge about forest landscapes into an integrative approach to land-management decision making. The development of the IFER Decision Support System (DSS) will capitalise on this opportunity by developing a robust system that:

- Recognises and understands the drivers of change in a Victorian forested landscape;
- Brings together world-class robust science and data sets;
- Uses this science to develop scenario modelling capacity to better understand the impacts of various interventions in the landscape;
- Provides an interface for land managers and communities to explore the impacts of natural drivers and policy interventions on multiple forest values, and
- Supports DELWP to identify the best policy interventions to achieve outcomes for Victoria's forests that are environmentally sound and publically acceptable.

The Programmer (Scientific Software) will be responsible for developing software central to the IFER DSS. The role requires the development of complex computer software to simulate the effects of natural and management drivers on biophysical, social and economic values over time and at landscape scales, and the development of a user-friendly interface to enable diverse end-user groups to interact with the system to explore outcomes for multiple values across a range of scenarios.

The successful candidate will work closely with researchers, technical staff and postgraduate students from a range of disciplinary backgrounds to develop a prototype of the DSS, to test implementation of the DSS using DELWP-defined scenarios for a test landscape, and to develop a user-friendly interface for community and land management end users to examine scenario outcomes.

1. Key Responsibilities

- Develop, test and implement scientific software for the IFER project 'The Integrated Landscape Decision Support System;'
- Analyse requirements for the DSS, integrating input from researchers and end users with different disciplinary backgrounds;
- Develop and test a DSS using a range of programming and modelling techniques including Bayesian Networks and off-the-shelf programmes;
- Develop and test a user interface for the IFER DSS;
- Establish operational links between existing iFER and DELWP modelling frameworks;
- Collaborate with project sponsors and collaborators, including attendance of key meetings, seminars and workshops;

- Assist in publication of results through contributions to writing, development of models and analysis of data;
- Develop technical documentation for all developed scientific software including processes for model use and curation;
- Contribute to user training of the IFER DSS;
- Keep track of the latest developments in software development tools and implement those that meet the needs of the iFER project as required; and
- Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in section 5.

2. Selection Criteria

2.1 ESSENTIAL

- A Bachelor-level degree in Computer Programming or equivalent professional experience;
- Demonstrated ability to develop and support scientific software; in particular, experience with statistical and database software with capability in multiple programming languages including C++, C#, C and derivatives, .net and java;
- Demonstrated ability to work as part of a project development team with programmers, scientists and agency staff. In particular skills are required to communicate with, and integrate input from, people with varied disciplinary and professional backgrounds;
- Demonstrated ability to contribute to the development and writing of scientific publications;
- Demonstrated ability to implement operational software for government agencies or similar; and
- Initiative and demonstrated capacity to contribute effectively, as part of a team, to the operations and corporate goals of the School of Ecosystem and Forest Sciences.

2.2 DESIRABLE

- Research experience in fire risk, forest ecology and/or forest management; and
- Willingness and capacity to participate in field-based research programs.

3. Special requirements

- The successful applicant will be required, at times, to assist other researchers with fieldwork. This may require working in remote areas and rugged terrain.
- As the School of Ecosystem and Forest Sciences is located over several metropolitan and regional campuses, staff may be required to travel to other sites and campuses from time to time.
- Overnight travel will be required from time to time, including interstate or as part of fieldwork.

4. Equal Opportunity, Diversity and Inclusion

The University is an equal opportunity employer and is committed to providing a workplace free from all forms of unlawful discrimination, harassment, bullying, vilification and victimisation. The University makes decisions on employment, promotion and reward on the basis of merit.

The University is committed to all aspects of equal opportunity, diversity and inclusion in the workplace and to providing all staff, students, contractors, honorary appointees, volunteers and visitors with a safe, respectful and rewarding environment free from all forms of unlawful discrimination, harassment, vilification and victimisation. This commitment is set out in the University's People Strategy 2015-2020 and policies that address diversity and inclusion, equal employment opportunity, discrimination, sexual harassment, bullying and appropriate workplace behaviour. All staff are required to comply with all University policies.

The University values diversity because we recognise that the differences in our people's age, race, ethnicity, culture, gender, nationality, sexual orientation, physical ability and background bring richness to our work environment. Consequently, the People Strategy sets out the strategic aim to drive diversity and inclusion across the University to create an environment where the compounding benefits of a diverse workforce are recognised as vital in our continuous desire to strive for excellence and reach the targets of Growing Esteem.

5. Occupational Health and Safety (OHS)

All staff are required to take reasonable care for their own health and safety and that of other personnel who may be affected by their conduct.

OHS responsibilities applicable to positions are published at:

http://safety.unimelb.edu.au/people/community/responsibilities-of-personnel

These include general staff responsibilities and those additional responsibilities that apply for Managers and Supervisors and other Personnel.

6. Other Information

6.1 ORGANISATION UNIT

http://ecosystemforest.unimelb.edu.au/

The School of Ecosystem and Forest Sciences (SEFS) is Australia's premier research and education provider dedicated to the study of ecosystem processes, sustainable land management, and environmental social science in forest and other ecosystems, covering the full range from natural to highly urbanised systems. SEFS combines expertise in the biological and physical sciences with environmental social science to provide research and teaching of applied ecosystem science that is relevant to society, delivering innovative solutions to the environmental issues faced by a rapidly growing global community. Our work spans from molecular to ecosystem scales, from technology to sociology, and from city to wilderness.

Established research strengths include 'Integrated Forest Ecosystem Research', 'Bushfire Science', 'Urban Horticulture and Landscape Management' and 'Ecohydrology'.

SEFS features significant cross-institutional collaborations and engagement activities with many industries throughout Australia and South-east Asia.

As a School we provide leadership in applied sciences through our Postgraduate Coursework degrees, the 'Master of Forest Ecosystem Science' (MFES) and the 'Master of Urban Horticulture' (MUH). Our Graduate Certificates and Diplomas in 'Bushfire Planning and Management', 'Forest Systems Management', 'Garden Design', 'Arboriculture' and 'Green Roofs and Walls' provide individuals working in industry with opportunities for intensive and career-directed learning and skills development.

As one of seven Schools within the Faculty of Science, SEFS operates from three locations:

- the University's main Campus at Parkville;
- the suburban Burnley Campus with a century old tradition of excellence in urban horticulture, which today is a dynamic multidisciplinary research centre with a focus on green infrastructure, urban ecology, ecohydrology and forest science; and
- the regional Creswick Campus, the University's specialist campus for forest science and the birthplace of forest education and research in Australia, which today also is home to significant plant and crop science initiatives of other Faculties.

Our extensive teaching and research facilities at all three campuses are complemented by a number of long-term field research sites including 'Long Term Fire Effects Study Areas' established in the 1980s, the Little Stringybark Creek urban catchment experiment, and a 'Terrestrial Ecosystem Research Network Super Site' in the Wombat State Forest, close to Creswick, which represent a significant strength of the new School.

6.2 BUDGET DIVISION

http://www.science.unimelb.edu.au

Science at the University of Melbourne is the most highly ranked Faculty of Science in Australia.* Science is defined by its research excellence in the physical and life sciences and is at the forefront of research addressing major societal issues from climate change to disease. Our discoveries help build an understanding of the world around us.

We have over 150 years of experience in pioneering scientific thinking and analysis, leading to outstanding teaching and learning and offer a curriculum based on highly relevant research, which empowers our STEM students and graduates to understand and address complexities that impact real world issues and the challenges of tomorrow.

We aspire to engage the broader community with the impact that Science has on our everyday lives. Through the strength of our internships and research project offerings, our students are provided opportunities to engage with industry partners to solve real-world issues.

The Faculty of Science has over 50,000 alumni and is one of the largest faculties in the University comprising seven schools: BioSciences, Chemistry, Earth Sciences, Ecosystem and Forest Sciences, Geography, Mathematics and Statistics, and Physics.

The Faculty is custodian of the Bio21 Molecular Science and Biotechnology Institute, Office for Environmental Programs and home to numerous Centres.

Science manages more than $290 million of income per annum, with a staff base in the order of 270 professional staff, and more than 580 academic staff.

We offer a range of undergraduate, honours, graduate and research degrees; enrolling over 8,600 undergraduate and 2,440 graduate students. The Faculty of Science is the custodial Faculty for the BSc (Bachelor of Science). The Faculty of Science is a leader in research, contributing approximately $70 million in HERDC income per annum. The Faculty of Science is highly research focused, performing strongly in the ARC competitive grants schemes, often out-performing the national average. The Faculty of Science is currently growing its competitiveness and standing in the NHMRC space.

The Faculty of Science provides community services and industry partnerships based on a solid foundation of research in the pure and applied sciences. The Faculty has an endowment of approximately $56 million. The annual income from the endowment supports more than 120 prizes, scholarships and research awards.

*Figures from the latest available data for 2015, including published international rankings data.

6.3 THE UNIVERSITY OF MELBOURNE

Established in 1853, the University of Melbourne is a leading international university with a tradition of excellence in teaching and research. The main campus in Parkville is recognised as the hub of Australia's premier knowledge precinct comprising eight hospitals, many leading research institutes and a wide-range of knowledge-based industries. With outstanding performance in international rankings, the University is at the forefront of higher education in the Asia-Pacific region and the world.

The University employs people of outstanding calibre and offers a unique environment where staff are valued and rewarded.

Further information about working at The University of Melbourne is available at http://about.unimelb.edu.au/careers.

6.4 GROWING ESTEEM, THE MELBOURNE CURRICULUM AND RESEARCH AT MELBOURNE: ENSURING EXCELLENCE AND IMPACT TO 2025

Growing Esteem describes Melbourne's strategy to achieve its aspiration to be a public-spirited and internationally-engaged institution, highly regarded for making distinctive contributions to society in research and research training, learning and teaching, and engagement. http://about.unimelb.edu.au/strategy-and-leadership

The University is at the forefront of Australia's changing higher education system and offers a distinctive model of education known collectively as the Melbourne Curriculum. The new educational model, designed for an outstanding experience for all students, is based on six broad undergraduate programs followed by a graduate professional degree, research higher degree or entry directly into employment. The emphasis on academic breadth as well as disciplinary depth in the new degrees ensures that graduates will have the capacity to succeed in a world where knowledge boundaries are shifting and reforming to create new frontiers and challenges. In moving to the new model, the University is also aligning itself with the best of emerging European and Asian practice and well-established North American traditions.

The University's global aspirations seek to make significant contributions to major social, economic and environmental challenges. Accordingly, the University's research strategy *Research at Melbourne: Ensuring Excellence and Impact to 2025* aspires to a significant

advancement in the excellence and impact of its research outputs.
http://research.unimelb.edu.au/our-research/research-at-melbourne

The strategy recognises that as a public-spirited, research-intensive institution of the future, the University must strive to make a tangible impact in Australia and the world, working across disciplinary and sectoral boundaries and building deeper and more substantive engagement with industry, collaborators and partners. While cultivating the fundamental enabling disciplines through investigator-driven research, the University has adopted three grand challenges aspiring to solve some of the most difficult problems facing our world in the next century. These Grand Challenges include:

- Understanding our place and purpose – The place and purpose grand challenge centres on understanding all aspects of our national identity, with a focus on Australia's 'place' in the Asia-Pacific region and the world, and on our 'purpose' or mission to improve all dimensions of the human condition through our research.
- Fostering health and wellbeing – The health and wellbeing grand challenge focuses on building the scale and breadth of our capabilities in population and global health; on harnessing our contribution to the 'convergence revolution' of biomedical and health research, bringing together the life sciences, engineering and the physical sciences; and on addressing the physical, mental and social aspects of wellbeing by looking beyond the traditional boundaries of biomedicine.
- Supporting sustainability and resilience – The sustainability and resilience grand challenge addresses the critical issues of climate change, water and food security, sustainable energy and designing resilient cities and regions. In addition to the technical aspects, this grand challenge considers the physical and social functioning of cities, connecting physical phenomena with lessons from our past, and the implications of the technical solutions for economies, living patterns and behaviours.

Essential to tackling these challenges, an outstanding faculty, high performing students, wide collaboration including internationally and deep partnerships with external parties form central components of Research at Melbourne: Ensuring Excellence and Impact to 2025.

6.5 GOVERNANCE

The Vice Chancellor is the Chief Executive Officer of the University and responsible to Council for the good management of the University.

Comprehensive information about the University of Melbourne and its governance structure is available at http://www.unimelb.edu.au/governance