Academic & Alumni Profiles

Dr Gavin M Mudd

Dr Gavin M Mudd has been an active researcher and advocate on the environmental impacts and management of mining for over a decade. He has been involved with many aspects of industry with a particular specialty in brown coal wastes, uranium mining and environmental management. His work has been showcased in several international journals and conferences. Gavin maintains an independent perspective, and has undertaken research for community groups, mining companies and aboriginal organisations, as well as participating in government committees.

Overall, Gavin works to understand the environmental sustainability of the resources which we all use on a daily basis - such as copper, rare earths, nickel, iron ore and steel, energy, water and so on - and integrates this through a multi-disciplinary approach.

Gavin joined Monash in 2003 and is presently Senior Lecturer and Course Director for Environmental Engineering at the Clayton campus. With a strong teaching load and active research interests, Gavin demonstrates his commitment to sustainability in engineering through his daily work in the classroom, research papers, and extensive community engagement.

Duncan Blackburn

Duncan Blackburn always wanted to work in a field that could “help make the world a better place”. He wanted to find a course that gave him the opportunity to understand the challenges that the human race faces in terms of sustainability and climate change, with a focus on sustainable development.

The environmental engineering degree at Monash gave Duncan the opportunity to gain a broad base of knowledge studying fields such as biodiversity, renewable energy, air quality, thermodynamics, recycling, transport, water systems, economics and corporate sustainability.

Duncan was also involved in the Faculty of Engineering’s Leadership in a Technological Environment Program. The program allowed him to gain insight into “ethics and entrepreneurship, leadership and people skills”. He attributes the knowledge he has gained through the Program as one of the things that will “subtly influence my future career in various positive ways”. “Having the opportunity to learn about leadership and people skills has been really invaluable.”

Making the decision to focus on the sustainable process stream, Duncan believes it will position him for work in the energy and sustainability field. Overall, Duncan sees the course as challenging and dynamic and one that will place him in a good position to take on environmental issues that the world is currently facing.

Tara Smith

Upon completing the Bachelor of Environmental Engineering, Tara said she felt pretty excited upon graduating. Today, she is working in the field of hydrogeology as an Environmental Engineer/Hydrogeologist.

Her role includes “supervising and designing the drilling and construction of water supply bores for commercial and town use, managing groundwater in terms of entitlements, allocations, salinity and impacts on neighbouring bores and undertaking field tests to determine the status of bores and the aquifer they are screened on”. Tara hopes that her role will ensure groundwater is continued to be used in a sustainable manner.

In the future Tara hopes to continue to develop her hydrogeological skills. “It is such a wide field that is both practical and very technical. I am always learning new things and hope to be forever provided with interesting challenges in my role.”

Tara attributes Monash for giving her “fantastic project management skills” which her role demands every day. She also says that, “Monash developed my analytical way of thinking, and this helps me solve problems from the simple to the very difficult.”

Tara’s advice for students? “Take on all the opportunities Monash provides for you – everything from assignments, public speaking and getting involved in the wider community through Clubs and Societies.”

Freya Amon

Upon completing the Bachelor of Environmental Engineering Freya says she felt “very proud to complete my degree from a university with a nationally renowned engineering program and am thankful for the hands on and practical learning environment that was provided”. Freya also believes the degree gave her the opportunity to do a broad range of subjects including engineering, scientific, economic and law aspects of the environment.

Golders Associates offered Freya a graduate position in the contaminated land (consulting) department when she completed her degree. The role of her job “is to collect soil and groundwater samples in the field to be analysed for potential contaminants that may harm humans or the environment.” She hopes that her role “will help reduce the multitude of known harmful chemicals that we are exposed to on a daily basis.” In the long term Freya is considering moving “towards a toxicology and human health risk assessment role”.

Freya advises students to become “involved in university life and the many clubs and societies as they provide great experience and networking and show employers that you are an active and enthusiastic person”.

The environmental engineering field is very diverse, Freya says, “the earlier you understand the many aspects and job opportunities available, the more likely you will end up with the right job opportunities and enjoying your day to day work.”

Freya attributes Monash for giving her “fantastic project management skills” which her role demands every day. She also says that, “Monash developed my analytical way of thinking, and this helps me solve problems from the simple to the very difficult.”

Tara’s advice for students? “Take on all the opportunities Monash provides for you – everything from assignments, public speaking and getting involved in the wider community through Clubs and Societies.”
What is environmental engineering?
Few other branches of engineering have such a profound impact on our health and quality of life. Environmental engineering is all about reducing energy and resource use and minimizing waste, while at the same time providing a better community with the development opportunities it needs to grow.

A mature but still growing multidisciplinary branch of engineering, it involves the implementation and management of environmental solutions and programs that are in harmony with the principles of sustainable development.

What do environmental engineers do?
By minimizing environmental problems through sustainable development, environmental engineers make a genuine difference to our world. By monitoring air, water and land quality they help protect and restore the environment.

Environmental engineers work closely with other professionals and with the community. They routinely:
- Reduce catchment soil erosion and salinity
- Develop and implement cleaner production technologies to minimize industrial pollution
- Develop or rehabilitate landfill sites
- Develop building and transport systems in harmony with the environment
- Evaluate, monitor, regulate and minimize the environmental impact of engineering projects
- Develop environmental management systems
- Ensure the provision and distribution of clean water supplies
- Design, construct, operate and manage wastewater treatment facilities.

Careers in environmental engineering
Our increasing population and improving living standards continue to provide many local and international employment opportunities in government organisations, consultancies and contracting firms, research and development organisations, and education and government organisations, consultancies and contracting firms, to provide many local and international employment opportunities.

The course has a significant engineering and scientific emphasis and develops a deeper understanding of engineering.

Environmental engineers work in a variety of organisations, including:
- Engineering consulting firms
- Industries that need cleaner production systems; mining, chemical, manufacturing etc
- Private and municipal agencies that supply drinking water and treat domestic wastewater
- Companies treating and disposing of hazardous waste
- Government agencies monitoring and regulating environmental issues
- Universities that teach and conduct research on environmental issues
- International agencies that aid developing nations
- Local government authorities.

Environmental engineering at Monash
The Bachelor of Environmental Engineering course at Monash is multidisciplinary, providing the necessary skills to solve, implement and manage engineering activities from a sustainability perspective. You can select units from three streams and choose complementary units from science, geography or arts.

Elective Streams
Water and Land Management: Water supply and sanitation, water resources, sustainable urban water systems, geoenvironmental hazards, land contamination and remediation, foundations and geoengineering.

Environmental Process Engineering: Cleaner production technologies, sustainable resource processing, design project.

Transport and the Built Environment: Green buildings, sustainable transport and environmental design, building structures, analysis and design.

Level one offers a broad base of science, mathematics, introductory engineering and environmental units to form the basis of a multidisciplinary engineering education.

Level two increases the engineering content with a mixture of core engineering units and more environmentally directed units. Mathematics continues and environmental policy is introduced to develop a deeper understanding of engineering.

The course has a significant engineering and scientific emphasis on managing and sustaining the environment, with relevance to Australia as well as embracing themes and problems relevant internationally. The improvement of the human condition is implicit in this course.

Environmental Double Degrees
Environmental Engineering/Arts*
Combining engineering and arts will give you complementary skills in environmental technology and communications, geography or languages.

For example, languages and engineering is a valuable combination if you are interested in an international career. An engineer with a communications qualification is also well placed to translate complex technical concepts into clear, well-written documents.

Any arts major or minor sequence can be combined with the environmental engineering.

Environmental Engineering/Commerce*
Do you dream of making it big in the business world? If so, engineering with commerce is a powerful combination.

Many CEOs of major corporations are engineers. People with sound business skills and a strong technological background are consistently in demand across a myriad of industries and organisations. This is becoming increasingly important as the world begins to acknowledge and be aware of their environmental impact, especially with respect to climate change and carbon costs.

Environmental Engineering/Science
The environment is one of the most significant challenges facing all nations today. This course has been developed in response to the changes re-shaping modern society such as climate change and global warming and the demand for emerging technologies with an emphasis on renewable energy, sustainability and innovative nanotechnologies. The growing interaction of environmental engineering and science is an important, emerging area and this program addresses a worldwide need for specialist skills in both disciplines.

Science is concerned with the study of fundamental physical processes while engineering is primarily concerned with the application of scientific principles to technology. The science and environmental engineering combination will enable students to learn about the practical application of fundamental knowledge, and develop a deeper understanding of engineering.

The course has a significant engineering and scientific emphasis on managing and sustaining the environment, with relevance to Australia as well as embracing themes and problems relevant internationally. The improvement of the human condition is implicit in this course.

* Offered subject to final university approval.

Further information
For more information please contact:
Faculty of Engineering
Tel: +61 3 9905 3404
Email: engineering.enquiries@monash.edu

Course Recognition
The Bachelor of Environmental Engineering degree is fully accredited with Engineers Australia. This means that as a graduate you can practise as an environmental engineer in many parts of the world without needing to re-qualify.

How to apply
Domestic and Onshore International students
Apply through VTAC
If you are an Australian or New Zealand citizen or a permanent Australian resident, or you are an international student who has completed VCE or IB in Victoria, you must apply through the Victorian Tertiary Admissions Centre (VTAC).

Visit: www.vtac.edu.au for more information

International students
International students not currently studying VCE or IB in Victoria should apply direct to Monash. http://www.monash.edu.au/study/international/

Prerequisites
The prerequisites for entry to the Bachelor of Environmental Engineering are: VCE Year 12, Units 3 and 4 – a study score of at least 25 in English (ESL) or 26 in any other English, and a study score of at least 25 in Mathematical Methods (CAS), and in one of Chemistry or Physics.

Later year entry
If you have studied at post-secondary level in or outside of Australia, you may be eligible for some credit towards your degree. The amount of credit awarded will depend on your completed qualification and the specific subjects studied.

*Offered subject to final university approval.