

Faculty of Science: Contextualised Graduate Attributes

<http://www.itl.usyd.edu.au/graduateAttributes/facultyGA.cfm?faculty=Science>

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Research and Inquiry

Graduates of the Faculty of Science will be able to create new knowledge and understanding through the process of research and inquiry.

- * An ability to engage in an examination of truth and validity in scientific argument and discourse and evaluate the relative importance of ideas.
- * An ability to apply scientific knowledge and critical thinking to identify, define and analyse problems, create solutions, evaluate opinions, innovate and improve current practices.
- * An ability to gather, evaluate and deploy information relevant to a scientific problem.
- * An ability to disseminate new knowledge and engage in debate around scientific issues.
- * The recognition of the rapid and sometimes major changes in scientific knowledge and technology, and to value the importance of continual growth in knowledge and skills.
- * An ability to design and conduct experiments and to analyse and interpret data from those experiments.

Information Literacy

Graduates of the Faculty of Science will be able to use information effectively in a range of contexts.

- * An ability to use a range of computer software and hardware packages, such as word processing and spreadsheets, in the process of gathering, processing and disseminating scientific information (IT literacy)
- * An ability to make value judgements about the reliability and relevance of information in a scientific context (evaluation)
- * An ability to use a range sources of information (such as catalogues and databases) effectively and efficiently to find desired information (searching)
- * An appreciation of the various form of information within the engineering discipline including technical books and reports, research articles, customer requirements, company standards and an appreciation of the main legal definitions.

Personal and Intellectual Autonomy

Graduates of the Faculty of Science will be able to work independently and sustainably, in a way that is informed by openness, curiosity and a desire to meet new challenges.

- * An ability to evaluate their own performance and development, to recognise gaps in knowledge and acquire new knowledge independently.
- * An ability to adapt to new situations and to deal with uncertainty.

- * An understanding of the importance of reflecting on personal experiences, and an ability to consider their effect on thought, feeling, personal and interpersonal action and professional practice.
- * An ability to set achievable and realistic goals and monitor and evaluate progress towards these goals.
- * An appreciation of the personal skills involving openness and curiosity both within the disciplines of science and outside of them, and the importance of relating scientific understanding to the whole.
- * An appreciation of the endless bounty of knowledge both within the discipline and outside of it, and that effective engineering comes through the process of continual personal growth in terms of openness and curiosity towards this knowledge.

Ethical, Social and Professional Understanding

Graduates of the Faculty of Science will hold personal values and beliefs consistent with their role as responsible members of local, national, international and professional communities

- * A sensitivity towards and empathy with another's situation, feelings and motivation.
- * An understanding of the significance and scope of ethical principles, both as a professional scientist and in the broader social context, and a commitment to apply these principles when making decisions.
- * An appreciation of sustainability and the impact of science within the broader economic, environmental and socio-cultural context.

Communication

Graduates of the Faculty of Science will recognise and value communication as a tool for negotiating and creating new understanding, interacting with others, and furthering their own learning.

- * An ability to explain and present ideas to different groups of people in plain English.
- * An ability to write effectively in a range of contexts and for a variety of different audiences and purposes.
- * An understanding of the effect and use of symbolic and non-verbal communication, such as body language, facial expression, pictures, icons and symbols.
- * An ability to present and interpret data or other scientific information using graphs, tables, figures and symbols.
- * An understanding of group dynamics and an ability to work as a member of a team, and to take individual responsibility within the group for developing and achieving group goals.
- * An ability to take a leadership role in successfully influencing the activities of a group towards a common goal.
- * An ability to actively seek, identify and create effective contacts with others in a professional and social context, and maintain those contacts for mutual benefit.