Faculty of Science Handbook 1999

Editor: Anthony F Masters
The Editor gratefully acknowledges the substantial inputs to the preparation of the Handbook by Ms Elisabeth Van de Wetering and Ms Barbara Chmielewski from the Faculty of Science. All Departmental and School Faculty Handbook Liaison Officers are also thanked for their assistance.
Photography was by Tracey Schramm.
Department of Psychology

Psychology is the study of behaviour. As a study it is approached on a scientific basis, with provision for professional training at the postgraduate level. The research activities of the Department cover almost all of the main branches of the subject.

A normal three year sequence in Psychology is Psychology 1001, 1002, 2111, 2112, 2113, 2114, and six Senior units of study selected from Psychology 3201, 3202, 3203, 3204, 3205, 3206, 3207, 3208, 3209, 3210, 3211 and 3212. Mid year entry is possible and involves modification of this sequence. The units of study available are:

- Psychology 1001, 6 credit points
- Psychology 1002, 6 credit points
- Psychology 2111, 6 credit points
- Psychology 2112, 6 credit points
- Psychology 2113, 6 credit points
- Psychology 2114, 6 credit points
- Psychology 3201, 6 credit points
- Psychology 3202, 6 credit points
- Psychology 3203, 6 credit points
- Psychology 3204, 6 credit points
- Psychology 3205, 6 credit points
- Psychology 3206, 6 credit points
- Psychology 3207, 6 credit points
- Psychology 3208, 6 credit points
- Psychology 3209, 6 credit points
- Psychology 3210, 6 credit points
- Psychology 3211, 6 credit points
- Psychology 3212, 6 credit points

In addition, Bachelor of Psychology students may be permitted to study:

- Psychology 3213, 4 credit points (This unit of study may not be available every year.)

Students who have completed PSYC 3001 and/or 3002 must obtain the permission of the Head of Department of Psychology before enrolling in any of PSYC 3201 to 3212.

Registration and Noticeboards

Students in all years must register during the orientation period. Psychology 1001 students register by going to the Carslaw Building during orientation and collecting a personalised computer generated timetable, which will indicate the lecture times and the tutorial group to which they have been allocated. Further information will be posted at the Enrolment Centre and on the Junior Psychology noticeboard on the 4th Floor of the Griffith-Taylor Building.

Information about registration meetings for Intermediate and Senior Psychology students will also be posted at the Enrolment Centre, and on the Departmental noticeboards on the 5th floor of the Griffith-Taylor Building.

Enquiries

The main enquiry office of the Department is Room 416, Griffith-Taylor Building (tel. 9351 2872). Staff members available to discuss particular courses may be contacted directly or through this office.

Honours

In order to be eligible to enter Psychology 4 Honours, it is necessary (except as provided in the by-laws or resolutions) to gain an average of Pass with at least Credit average in Intermediate and in Senior Psychology units of study. These Psychology units include Psychology 2111, 2112, 2113, 2114, 2301, 2302, and at least four other Senior Psychology unit from Psychology 3201, 3204, 3205, 3206, 3207, 3208, 3209, 3210, 3211 and 3212. Students wishing to graduate with Honours in Psychology are urged to discuss their choice of other subjects with a Faculty adviser as soon as practicable.

Examinations

Undergraduate units of study are examined at the end of each semester and include classwork by way of essays, reports or practical/laboratory work. At the beginning of each unit of study students are advised of its the contributions of exam and classwork for assessment purposes.

Textbooks

Check Departmental syllabi before buying prescribed texts.

PSYC 1001 Psychology 1001

6 credit points

Offered: March. Classes: 3 lecs, one 2hr demonstration/tut/wk.

Assessment: One 3hr exam, one 1000w essay, two tut tests; experimental participation.

Psychology 1001 is a general introduction to the main topics and methods of psychology, and is the basis for advanced work as well as being of use to those not proceeding with the subject. Psychology 1001 covers the following areas: subject matter and methods of psychology; basic statistics and measurement; behaviourism: neuroscience; sensory processes; social psychology; personality theory.

Textbooks

Psychology 1001 Handbook (1999) and others as advised.

PSYC 1002 Psychology 1002

6 credit points

Offered: July. Classes: 3 lecs & 2hr demonstration/tut/wk.

Assessment: One 3hr exam, one 1250w prac report, two tut tests; experimental participation.

Psychology 1002 covers the following areas: human development; human mental abilities; learning, motivation and abnormal psychology; visual perception; cognitive processes.

Textbooks

Psychology 1002 Handbook (1999) and others as advised.

PSYC 2111 Perception, Learning and Neuroscience

4 credit points


This unit of study examines a range of phenomena and principles in perception and learning and their relations to neural substrates. The emphasis in perception is on the visual system and the relationship between structure and function, especially with respect to receptive fields and various visual effects. Also covered are depth, form, object and movement perception, the problem of perceptual stability and constancy and perceived orientation, including the relationship between the visual and vestibular systems. The emphasis in learning is on instrumental conditioning and the principle of reinforcement, ranging from applications of this principle to its neural substrates. Also covered are analyses of aversive-based learning, such as punishment and avoidance, and anxiety, together with related neurochemical mechanisms and the effects of various psychopharmacological agents on these processes. A series of practical classes and demonstrations allow students to gain hands-on experience of how some of these principles and phenomena may be studied experimentally.

Textbooks

See Departmental handout

PSYC 2112 Psychological Statistics

4 credit points

Qualifying: Psychology 1001 and 1002 (Note: 16 credit points of Intermediate Psychology is required for Honours entry). Offered: March. Classes: 2 lecs & 1 prac/wk, 1 computer tut/fortnight. Assessment: Class tests, Group project, Multiple choice exam.

The aim of this unit of study is to introduce students to some of the fundamental concepts in statistics as used in Psychology. These include summary descriptive statistics and an introduction to the principles and practice of experimental design and inferential statistics. Building upon this groundwork, the unit of study aims to develop student’s expertise in understanding the rationale for, and application of a variety of statistical tests to the sorts of data typically obtained in psychological research.
Textbooks
See Departmental handout

PSYC 2113 Cognitive Processes and Social Psychology
4 credit points
Qualifying: Psychology 1001 and 1002 (Note: 16 credit points of Intermediate Psychology is required for Honours entry). Offered: July. Classes: 2 lec & 1 prac/wk. Assessment: Class quiz and multiple choice exam.

The aim of the Cognitive Processes component is to acquaint students with current theoretical work in cognitive psychology. The aim of the Social Psychology component is to extend some of the Social Psychology topics introduced in Psychology 1001 and to introduce some new topics. Students are expected to gain an understanding of two main areas of Social Psychology: (1) Group and intergroup relationships and (2) Interpersonal processes, with a focus on altruism and helping behaviour and affiliation and attraction.

Textbooks
Cognitive Processes - see Departmental handout

PSYC 2114 Personality and Individual Differences
4 credit points
Qualifying: Psychology 1001 and 1002 (Note: 16 credit points of Intermediate Psychology is required for Honours entry). Offered: July. Classes: 2 lec & 1 prac & 1 hr self-paced computer/library research/wk. Assessment: Personality: 1 hr exam & essay; Individual Differences: 1 hr exam.

PSYC 2114 is made up of two components: Personality and Individual Difference. The aim of the Personality component is to introduce the student to a wide range of theories of personality, ranging from the psychoanalytic approach through its dissensions, extensions and revisions to the behavioural model, including the social learning approach, and culminating in the Third Force, i.e. the humanistic perspective. The focus is on controversial issues, allowing the student to see how different philosophical assumptions lead to the same behavioural manifestations being interpreted in different ways. The aim of the Individual Differences component is to introduce the major issues in individual differences and group differences in human abilities. It is divided into two parts: 5 lectures on individual differences and 8 lectures on group differences. Students are expected to gain an understanding about the major theories of intelligence and of the facts related to the traditional areas of group differences.

Textbooks
See Departmental handout

PSYC 3201 Statistics and Psychometrics
4 credit points
Qualifying: 12 credit points of Intermediate Psychology including Psychology 2112 (or Psychology 2001 and 2002). Offered: July. Classes: 2 lec & 1 prac & 1 hr unsupervised computer practice/wk. Assessment: Class test, assignment, examination.

PSYC 3201 consists of two components, Statistics and Psychometrics. The aim of the Statistics component is to teach students the structure of experiments for which analysis of variance would be an appropriate means of analysis. The unit of study aims to develop students' ability to ask more focused questions than can be answered by omnibus F tests, specifically by the testing of contrasts. The problems of multiple inferences, and the control of the Type I error rate, are an integral aspect of the unit of study.

The objective of the Psychometrics component is to introduce students to measurement as understood in Psychology, to a range of quantitative theories and to the basic concepts of classical psychometrics, item analysis and test construction.

Textbooks
See Departmental handout

PSYC 3202 History and Philosophy of Psychology
4 credit points
Qualifying: 12 credit points of Intermediate Psychology. Offered: March. Classes: 2 lec & 1 prac & 1 hr self-paced library research/wk. Assessment: 2 hr exam, 1 x 2500 word essay.

PSYC 3202 consists of two components: History of Psychology and Philosophy of Psychology. The History of Psychology introduces the historical foundations of Western psychology from Descartes through to the cognitive revolution in the 1960's. In covering important individuals, movements and themes, attention is drawn to debate about interpretation of the historical process, and to analysis of the form and structure of the various arguments presented in favour of certain psychological theories. The Philosophy of Psychology introduces traditional and contemporary themes in the philosophy of science, with focus on the relevance to psychology. Students are expected to become aware that metatheoretical analysis has a central place in psychology alongside empirical methods, that the basic concepts and theories of psychology involve philosophical assumptions which can be articulated and examined.

Textbooks
See Departmental handout

PSYC 3203 Abnormal Psychology
4 credit points
Qualifying: 12 credit points of Intermediate Psychology. Offered: July. Classes: 2 lec & 1 tut/wk. Assessment: 2 hr exam, essay.

This unit of study examines core issues in Abnormal Psychology. The unit of study will cover aspects of adult abnormality and child abnormality and will include topics such as:

(a) Adult abnormal psychology: Anxiety disorders (specific phobias, panic disorder, agoraphobia, OCD; Addictive disorders (drug, alcohol, gambling); Eating disorders (anorexia nervosa, bulimia nervosa); Mood disorders (dysthymia, major depressive disorder, cyclothymia, bipolar disorder); Schizophrenia, Personality disorders.

(b) Child abnormal psychology: Learning disabilities, Mental retardation, Intellectual and educational assessment of children; Pervasive developmental disorders; Attention deficit disorder, conduct disorder, Anxiety disorders in children and adolescents; Depression; Feeding and elimination disorders; CBT interventions; Traditional and family therapy approaches.

Textbooks

PSYC 3204 Behavioural Neuroscience
4 credit points
Qualifying: 12 credit points of Intermediate Psychology including Psychology 2111 and 2112 (or Psychology 2001 and 2002). Offered: July. Classes: 2 lec & 1 prac/wk. Assessment: 2 hr exam, class quiz, report.

This unit of study carries on from the Neuroscience component in PSYC 2111, providing more specialised coverage in the areas of psychopharmacology, molecular neuroscience, human brain imaging, cognitive neuroscience and energy balance regulation. Topics to be covered include: Psychopharmacology (neural actions of cannabinoids, effects of cannabis on memory and cognition, neural actions and neurotoxicity of MDMA, neural actions of antidepressants); Molecular Neuroscience (drug effects on gene expression, knockout mice and antisense technologies); Overview of brain imaging technologies (findings in psychiatry and neurology, what we can learn about the fundamentals of brain functions from brain imaging); Obesity, definitions, epidemiology and implications (the components of mammalian energy balance, the psychobiology of weight loss).

Top 25% if students (as determined by quiz performance in week 6) are given the opportunity to participate in a laboratory project. Other students do a library project.

Textbooks
See Departmental Handout
PSYC 3205  Cognition and Language
4 credit points
Qualifying: 12 credit points of Intermediate Psychology including Psychology 2112 and 2113 (or Psychology 2001 and 2002).
Offered: July. Classes: 2 lec & 1 tut/wk. Assessment: Class quiz, laboratory report, multiple choice exam.
Cognitive Processes and Language & Communication. Cognitive Processes deals with current research in memory, attention and pattern recognition and is approached in a practical way. Students participate in experiments as subjects and experimenters and are encouraged to think and act as experimenters in order to prepare them for their empirical projects in fourth year honours. Additionally, in tutorials, students are given experience at running simple neural network simulation programs and encouraged to think about the experimental implications of these simulations. In other tutorial sessions students are set problems in the derivation of hypotheses from theory and the design of experiments to test these hypotheses. Language & Communication focuses on face-to-face communication. Language is considered in terms of its expressive content, and spoken language is discussed as part of a multi-channel communication system.
Textbooks
See Departmental handout.

PSYC 3206  Developmental Psychology
4 credit points
Qualifying: 12 credit points of Intermediate Psychology. Offered: March. Classes: 2 lec & 1 tut/wk. Assessment: 2 hr exam, child study report.
This unit of study examines the theoretical bases of human development and selected issues within Developmental Psychology. The major issues/controversies in Developmental theory are examined in relation to a number of the more influential theoretical approaches. Students are expected to gain an understanding of the main theoretical influences upon current developmental research and to be able to compare and contrast theories of development. The unit of study examines theories of cognitive development in somewhat more depth and students are expected to apply this knowledge in their practical exercise (child study). In addition the unit introduces students to a range of issues in selected areas of contemporary Developmental Psychology. Students are expected to gain knowledge of these areas, and to develop a critical approach to the analysis of current research and theoretical issues. They are also expected to apply their knowledge and skills to the observation and assessment of a child across a range of developmental domains in their practical exercise (child study).
Textbooks
See Departmental handout.

PSYC 3207  Human Performance & Organisational Psychology
4 credit points
Qualifying: 12 credit points of Intermediate Psychology including Psychology 2113 (or Psychology 2001 and 2002). Offered: July. Classes: 2 lec & 1 tut/wk. Assessment: 2 hr exam, prac report.
PSYC 3207 is comprised of two parts; Human Performance and Organisational Psychology. The former is designed to provide a basic understanding of the factors affecting variation in human performance and ways of optimising performance and to provide a demonstration of the application of psychology to work and sport. The unit of study focuses on some environmental, and subjective factors which affect performance as well as introducing students to the relationship between chronobiology and performance. The Organisational Psychology component focuses on performance in the work place and the influence of social factors on such performance.
Textbooks
See Departmental handout.

PSYC 3208  Intelligence
4 credit points
Qualifying: 12 credit points of Intermediate Psychology including Psychology 2112 and 2114 (or Psychology 2001 and 2002).
Offered: July. Classes: 2 lec & 1 tut/wk. Assessment: 2 hr exam, tutorial quizzes.
The aim is to provide an overview and critical platform to evaluate recent studies of individual differences in human cognitive abilities. The unit introduces major contemporary issues in individual differences in human abilities and intelligence. The emphasis of the latter part is on recent work on the topics related to (a) Psychometric research on intelligence; (b) Experimental cognitive correlates approach to intelligence; (c) Biological aspects of intelligence; and (d) the role of metacognitive abilities in intelligence. Some of the work carried out at this University is also discussed.
Textbooks
See Departmental handout.

PSYC 3209  Learning & Motivation
4 credit points
Qualifying: 12 credit points of Intermediate Psychology including Psychology 2111 and 2112 (or Psychology 2001 and 2002).
PSYC 3209 introduces the fundamental concepts and more important research findings of contemporary learning theory and selected approaches to motivation. It examines the application of such fundamental research to issues such as drug tolerance, food choice, stress, health promotion and risk taking. It is designed to develop skills in reading primary sources in this area; and to provide the opportunity for hands-on experience of planning and carrying out a research project.
Textbooks
See Departmental handout.

PSYC 3210  Perceptual Systems
4 credit points
Qualifying: 12 credit points of Intermediate Psychology including Psychology 2111 and 2112 (or Psychology 2001 and 2002).
Offered: March. Classes: 2 hrs & 1 hr lab/wk. Assessment: 2 hr exam, quiz/report.
This unit covers at an advanced level selected topics in Perception from both the psychophysical and neuroscientific perspectives. Students are expected to gain an understanding of the main theoretical perspectives in current research, to appreciate the significance and relevance of basic perceptual research for understanding normal perceptual functioning, and to be able to evaluate the conceptual and empirical worth of research contributions.

PSYC 3211  Psychological Assessment
4 credit points
Qualifying: 12 credit points of Intermediate Psychology including Psychology 2112 and 2114 (or Psychology 2001 and 2002).
Offered: March. Classes: 2 lec & 1 tut/wk. Assessment: 2 hr exam, tutorial evaluation.
This unit will cover fundamental issues in the construction, evaluation and administration of psychological tests with particular emphasis on tests of personality. Students will be given ‘hands-on’ experience with a variety of psychological instruments including those used for personality, aptitude and clinical assessment. A variety of psychometric ‘skills’ (eg: calculating reliability, rudiments of scale construction) will also be taught. This unit of study will conclude with an introduction of state of the art issues in psychological assessment including demonstrations of adaptive and computerised testing and discussion of item response theory (IRT) and confirmatory factor analysis (CFA).
Textbooks
See Departmental handout.

PSYC 3212  Social Psychology
4 credit points
Qualifying: 12 credit points of Intermediate Psychology including Psychology 2113 (or Psychology 2001 and 2002). Offered: March. Classes: 2 lec & 1 tut/wk. Assessment: 2 hr exam, prac report.
PSYC 3212 examines aspects of Social Psychology with an emphasis in the latter parts of the course on Environmental Psychology. The former aims to extend the Social Psychology component of PSYC 2113 and to acquaint students with research in the basic areas covered. Tutorials provide first hand experience of research by involving students in the carrying out of up to five research projects. Tutorials also provide the opportunity for discussion of the areas.
Environmental Psychology examines the effect of several aspects of the physical environment on social behaviour. The emphasis is upon practical applications of the theories and research in these areas.

PSYC4001 Psychology Honours
48 credit points
Prerequisite: Average of Credit or better in 16 credit points of Intermediate Psychology, and also in Senior Psychology units which must include 3201, 3202 and at least four other units of study (or equivalent from Psychology 3001 and 3002). BPsych students should consult resolutions in Chapter 8. Department permission required. Offered: March (year-long). Assessment: Formal exams in General Psychology and Methods, report of empirical research project; theoretical thesis or take-home examination in three Special Fields modules.

Due to restricted resources for research supervision, the intake to Psychology 4 Honours will be limited to approximately 55 students and will be determined by academic merit.

Students are required to:
(a) devise, conduct and report upon an empirical research project,
(b) write a theoretical thesis or attend three Special Fields modules and write three essays;
(c) attend one General Psychology lecture series and two Method lecture series. The areas of psychology in which the empirical research project may be carried out may depend on the interests and specialties of staff members.

Bachelor of Science (Environmental)
The Bachelor of Science (Environmental) requires three years of full-time study. An Honours program is available and requires a further year of full-time study.

Progression in the Bachelor of Science (Environmental) degree program is by accumulation of credit points gained by completing units of study. A total of 144 credit points is required for the degree.

For information on other relevant units of study for this degree program, please refer to the appropriate Bachelor of Science unit of study descriptions.

HSC Aggregate
A quota exists for admission into the degree of Bachelor of Science (Environmental).

Transferring into the BSc (Environmental)
Students will only be permitted to transfer from other degrees offered by the University of Sydney into the Bachelor of Science (Environmental) degree program with the approval of the Chair of the Program Committee for Environmental Science.

Bachelor of Science (Environmental)
Junior Units of Study
Students should refer to the 'Summary of Requirements' in Chapter Three of this Handbook for regulations and unit of study requirements for the Bachelor of Science (Environmental) award course.

ENV11001 Global Geology
6 credit points
Professor Davies

Prerequisite: ENV11001 and ENV11002. Corequisite: ENV1 11003. Prohibition/other: This unit of study can only be taken by students enrolled in the BSc(Enivironmental). Note: enrolment is limited to 50 students. New unit of study subject to Faculty approval. Offered: March, Classes: 3 lec & prac/tut/wk. Assessment: Examination (50%), practical assessment (50%).

ENV1 11002 Geomorphic Environments and Change
6 credit points
Assoc. Prof. D. Dragovich

Prohibition/other: Changes to prerequisites and corequisites subject to Faculty approval. Offered: July. Classes: 3 lec & prac/tut/wk. Assessment: One 3hr exam, class work. This unit of study completes the introduction to environmental earth sciences by examining geographical scales of environmental concern, such as catchments, river basins, hydrology and land-use. The unit of study also considers the soil environment including physical, chemical and biological aspects. Students will learn how to integrate information from related disciplines to understand relationships between earth sciences and solutions to environmental problems.

Bachelor of Science (Environmental)
Intermediate Units of Study
In each semester, you must enrol in both of the Environmental Science Intermediate units of study offered.

ENV1 2003 Environmental Processes*
6 credit points
Prerequisite: ENV11001 and ENV11002. Corequisite: ENV1 2003. Prohibition/other: This unit of study can only be taken by students enrolled in the BSc(Enivironmental). Note: enrolment is limited to 50 students. New unit of study subject to Faculty approval. Offered: March, Classes: 2 lec & 2 prac/tut/wk, field excursions in prac time. Assessment: Examination (50%), practical assessment (50%).

ENV 2004 Physical and Human Environmental Impacts*
4 credit points
Prerequisite: ENV11001 and ENV11002. Corequisite: ENV1 2004. Prohibition/other: This unit of study can only be taken by students enrolled in the BSc(Enivironmental). Note: enrolment is limited to 50 students. New unit of study subject to Faculty approval. Offered: July, Classes: 3 lec & 3 prac/tut/wk, field excursions in prac time. Assessment: Examination (50%), practical assessment (50%). This unit of study consists of two parts. The first is a modification of a successful module in the Senior Biology (Ecology) course and will run in conjunction with it. It introduces the logical structure of environmental sampling, including the nature of variables, univariate and multivariate measures, correlation of environmental variables and interpretation of data. This course also introduces the theory of sampling design for measurements at different scales of biological systems. Statistical analysis of data and the interpretation of magnitude and scale of environmental disturbances. Practical classes are computer-intensive exercises on these topics, plus an introduction to modelling environmental impacts in biological populations. The second part looks at anthropogenic impacts from the point of view

ENV 2103 Environmental Sampling and Biology*
6 credit points
Prerequisite: ENV11001 and ENV11002 and Biology (1001 or 1901) and Biology (1002 or 1902). Corequisite: ENV12104. Prohibition/other: This unit of study can only be taken by students enrolled in the BSc(Enivironmental), and cannot be counted towards BOL 3202. New unit of study subject to Faculty approval. Offered: July, Classes: 3 lec & 3 prac/tut/wk, field excursions in prac time. Assessment: Examination (50%), practical assessment (50%). This unit of study consists of two parts. The first is a modification of a successful module in the Senior Biology (Ecology) course and will run in conjunction with it. It introduces the logical structure of environmental sampling, including the nature of variables, univariate and multivariate measures, correlation of environmental variables and interpretation of data. This course also introduces the theory of sampling design for measurements at different scales of biological systems. Statistical analysis of data and the interpretation of magnitude and scale of environmental disturbances. Practical classes are computer-intensive exercises on these topics, plus an introduction to modelling environmental impacts in biological populations. The second part looks at anthropogenic impacts from the point of view.