UNSW
THE UNIVERSITY OF NEW SOUTH WALES

SCIENCE 2009

Enrolment Guide

THE UNIVERSITY OF NEW SOUTH WALES

A Welcome Message from the Associate Dean, Dr Scott Mooney.

Congratulations and welcome to Science at the University of New South Wales.

You'll hear the word 'welcome' many times during the next few weeks. It will be meant sincerely and I hope that your experience will be a good one while you become familiar with what UNSW can offer you.

UNSW is a big place and at first it can be quite confusing. You will have to go through the enrolment process select courses to study, find out where lectures, laboratories and tutorials are held, and so on. You may occasionally feel 'lost' and want advice on your programs or other matters - if this happens please come to the Science Student Centre for help. The Centre is located on Level 1 at the eastern end of the Robert Webster Building, room 128. You can contact us by phone (02) 9385-6125/7788 or email sso@unsw.edu.au. Alternatively, we have extensive information on our web sites the handbook and my UNSW.

I wish you every success over the next few years as you work towards the completion of your degree.

Scott Mooney
Associate Dean (Undergraduate Programs)
Faculty of Science

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Section 1

Getting Familiar with University Terminology

We understand that as a new student of UNSW, as well as whole new environment, you will also have a new set of terminology to get comfortable with. To assist you we have compiled a glossary. Alternatively, you may like to visit the *online handbook* where a comprehensive glossary is also available **http://www.handbook.unsw.edu.au/general/2009/SSAPO/glossary.html**.

Program
All programs are governed by basic conditions or rules that specify what a student is required to study in order to qualify for a particular degree. Undergraduate programs are identified by a four digit number, e.g. Bachelor of Science (3970) or Bachelor of Medical Science (3991).
If you go to the Online Handbook at;
http://www.handbook.unsw.edu.au/2009/index.html and search under **Direct Find** your program code i.e. 3970 (B Science), here you will find the rules governing this program.

Course
Courses are the building blocks of your program. In your secondary studies you may know these as subjects. Courses are identified by eight characters consisting of letters and numbers i.e. MATH1011 is the course code for Fundamentals of Mathematics B.

Unit of Credit (UoC)
UoC indicates the workload or weighting for a course. Most courses in the faculty of Science are 6 UoC, with some 3 UoC courses.

Compulsory or Core Course
Compulsory or Core courses are essential components of a program that **must** be completed. They are identified in your major/study plan, and are prerequisites for higher level courses.

Elective Course
Elective courses are chosen outside your compulsory or core components. They may be chosen within or outside of the Faculty of Science, provided you are completing the requirements of your science degree.

General Education Course (GE)
The General Education Program at UNSW intends to broaden and deepen students' understanding of the environment in which they live and work and to enhance their skills of critical analysis. Above all, the program presents students with interesting, challenging and enjoyable opportunities to pursue their own

intellectual curiosity. After your first year 12 UoC of GE's is compulsory in most programs. It is therefore important that new students become aware of the requirements and rules of GE's in relation to their program. Please take time to review this information at;
http://www.handbook.unsw.edu.au/generaleducation/2009/generaleducation.html

Level/Stage
Courses generally are offered in sequence of level/stage 1, 2 and 3. First year students must complete the level/stage 1 requirements of their program before progressing to level/stage 2 courses. Likewise in most cases level/stage 2 courses must be completed before enrolling in stage/level 3 courses. When a student completes their degree program within the normal minimum time, the different stages/levels will usually correspond with the year of study for the student. For various reasons stage and year may not correspond, do not be concerned if this happens to you.

Upper level
Stage/level **2 and 3** course**s** are considered upper level courses.

Major/Study Plan
Students must nominate a Major in their second year of study. Majors are an approved sequence of related courses making up a primary area of specialisation within a program. Within Science a Major requires a student to complete **at least** 42 UoC of upper level courses.

Minor
A Minor is a sequence of related courses making up a secondary area of specialisation. Minors are only available within 3970 B Sc.

Full time Load
18-24 UoC per session is considered a full-time load. However, students need to be aware that undertaking 18 UoC or less per session will mean that it will take longer to complete their degree.
Note: International students on student visas must ensure that the time taken to complete their degree conforms to the time frame on their visa.

Prerequisite
If a course indicates that it has a pre requisite course(s) then these **must** be completed prior to enrolment in the course for which it is prescribed.

Advanced Standing
Advanced Standing sometimes referred to as Credit Transfer, at undergraduate level this is recognition of prior study at a University. Please refer for further details to https://my.unsw.edu.au/student/commencing/AdvStand.html. When applying ensure that all required documentation is attached to your application.

Faculty
Faculties are large organisational units of the university. As a science student you are part of the Science Faculty. Within this faculty there are nine science schools and one department.

Science Schools
Along with the Science Student Centre, Science Schools are available to assist you with program and academic advice and administrative processes.

Student Central
Student Central shares the administrative processes of the university. It does not offer program and academic advice.
https://my.unsw.edu.au/student/academiclife/StudentCentralKensington.html

Section 2

Enrolling: Where to Start

Enrolling in First Year at UNSW

All new science students are able to enrol through their myUNSW login; you do not need to come to UNSW to enrol. However, enrolment can be a complex process so please carefully read this brochure, and the information contained in the *Enrolment for New Undergraduate Students 2009* that you received with your offer letter.

Additional assistance on 'How to enrol at UNSW' can be viewed at the following websites:
www.my.unsw.edu.au.
https://my.unsw.edu.au/student/academiclife/enrolment/EnrolmentTips.html

Use the following steps as a checklist before enrolling.

STEP 1

Which degree program?

Before you enrol you will need to be sure which UNSW degree program you are enrolling in. The following list on page 4 will assist you in this process.
This list indicates which **UNSW degree program code** corresponds to a particular **UAC** code.

UAC Code: (CSP)[+]	UNSW Code and Degree Program:
429000	3970 B Sc (Science)
429001	3930 B Sc/ B Arts
429001	3932 B Environmental Science/ B Arts
429001	3935 B Sc/ B Social Science
429002	4075 B Sc/ B Education
429003	3993 B Sc (Communications)
429004	3994 B Sc (Media and Communications)
429007	3991 B Sc (Medical Science)
429008	3988 B Environmental Science
429009	3135 B Eng (Materials Science and Engineering)
429011	3617 B Sc (Nanotechnology)
429013	3972 B Sc (Advanced Science)
429013	3931 B Sc (Advanced Science)/B Arts
429013	3936 B Sc (Advanced Science)/B Social Science
429014	3986 B Sc (Advanced Mathematics)
429014	3933 B Sc (Advanced Mathematics)/B Arts
429016	3980 B Aviation (Flying)
429017	3981 B Aviation (Management)
429018	3052 B Sc (Biotechnology)
429025	3952 B Optometry/B Sci
429026	3432 B Psychology

[+] CSP: Commonwealth Supported Place

STEP 2

Which Major or Study Plan?

a) If you are sure of the Major/Study Plan you wish to study.

As a guide to the courses you will need to enrol in please refer to the templates and course descriptions at the back of the book or refer to the online handbook and proceed to enrol.
http://www.handbook.unsw.edu.au/2009/index.html
Note: courses must be chosen across **at least three** different subject areas in science such as Chem/Math/Physics.

b) I am unsure which Major/Study Plan to follow.

In this case you may choose courses in Science that are of interest to you. It is not required that you nominate a major in your first year of study. In the templates which appear later in this booklet you will notice that choosing certain Stage 1 courses allows your choice of Major in stage 2 to be very flexible.

In the example below, completing the following stage 1 courses in your first year will allow you, in your second year, to study/nominate the following majors: Anatomy, Biological Sciences, Biochemistry, Biotechnology, Chemistry, Genetics, Marine Sciences, Medical Microbiology and Immunology, Microbiology, Molecular Biology, Pharmacology and Psychology.

Session 1	**Session 2**	
BABS1201	BIOS1101	
PSYC1001	PSYC1011	
CHEM1011	CHEM1021	
MATH1031	MATH1041	
24 UoC	*24 UoC*	*Total 48 UoC*

So by carefully choosing your 1st year courses, you can maximize your 2nd year choices.

STEP 3

Which Course?

Now, with some understanding of the possible flexibility that you can create in your first year please browse the section describing the first year Science courses. Reviewing both the courses that interest you, along with the templates of possible majors your choices can create, you are ready to enrol.

Section 3

Additional Important Information

- **Academic Advising Session; 29th January, 2009 (See included flyer)**

UNSW Science programs require you to make important course choices at enrolment and this booklet will help you do that - but you may still have questions or may be unsure of some aspects of the choices you can make. To assist you, the Faculty of Science is holding an Academic Advising Session on the Kensington campus on 29th January 2009**.** A separate information leaflet in this mail out gives you details of the event, academic advisers from all Schools and Departments of the Faculty will be present to offer guidance on courses and program options.

If you cannot make it to advising day please drop in to the Science Student Centre in the Robert Webster building, room 128, map reference G14.

- **ELISE is mandatory for all new undergraduate students.**

To ensure that you have the best opportunity to succeed the University has created ELISE – an online tutorial to introduce you to the scholarly information landscape and show you how best to navigate it.
Completing the ELISE tutorial, and achieving a pass at the ELISE quiz **is mandatory** for all new undergraduate students**.** ELISE can be accessed from the library web page at http://info.library.unsw.edu.au. Further information about ELISE is available on myUNSW at
https://my.unsw.edu.au/student/atoz/ELISE.html

- **Bridging courses available in Maths, Chemistry and Physics**

Assumed knowledge is what a lecturer or tutor of a first year UNSW course could reasonably expect all students enrolled in that course to know at the outset. For some degree programs and first year courses, it is assumed that students will have achieved a level of knowledge of the subject area that will prepare them to cope successfully with the content of the course, through their high school studies or other equivalent study.

Students who do not have the recommended level of assumed knowledge are not prevented from enrolling in a program, but they may be placed at a considerable disadvantage. Any students who have not achieved the recommended level of assumed knowledge are strongly advised to undertake a bridging program or other preparation course. Detailed information and a timetable indicating when the courses are offered can be accessed at
http://www.unsw.edu.au/futureStudents/nonAward/sad/bridgeprog.html

- **Dates to be aware of:**

** Examination dates are provisional and subject to change*

Semester 1	**2 Mar to 27 Jun**
O-Week Activities	23 Feb to 27 Feb
Week Zero	2 Mar to 6 Mar
Teaching Period One (T1)	9 Mar to 5 Jun
Mid-semester break	10 Apr to 19 Apr
Study Period (T1 only)	6 Jun to 11 Jun
Examinations* (T1 only)	12 Jun to 27 Jun
Mid -year recess	28 Jun to 19 Jul
Semester 2	**20 Jul to 14 Nov**
O-Week Activities	15 Jul to 17 Jul
Teaching Period Two (T2)	20 Jul to 23 Oct
Mid-semester break	5 Sep to 13 Sep
Study Period (T2 only)	24 Oct to 29 Oct
Examinations* (T2 only)	30 Oct to 14 Nov

A Selection of First Year Science Courses

BIOLOGY
These courses are compulsory for programs in biological sciences but are also appropriate for students wishing to broaden their degree and gain a better understanding of the world in which we live. BIOS1101 and BIOS1301 are taught on the basis that students have little background in biology, but it is assumed that students have either 2 unit Science (Physics) 53-100, OR 2 unit Science (Chemistry) 53-100.

BIOS1101 Evolutionary and Functional Biology is a 6 UOC course taught in Session 2. It is for anyone with an interest in the natural world – plants and animals in all their forms, including their origin, development, functioning, evolution, and how they interrelate.

BABS1201 Molecules, Cells and Genes is a 6 UOC course taught in Session 1. The course aims to introduce you to the concepts of modern Biology and to develop skills in scientific thinking and analysis. It is concerned with the basic characteristics of all life: its chemistry, the way in which the genetic code controls its chemical processes, cell biology and genetics.

BIOS1301 Ecology, Sustainability and Environmental Science is a 6 UOC course taught in Session 1. This course will give you a great background in the full range of environmental issues and their effects on biodiversity and sustainability.

BIOT1011 Introductory Biotechnology is a 6 UOC course offered in Session 2. This course provides an overview of the impact of biotechnology in the achievement of contemporary objectives in the field of medicine, plant and animal science, and in food, marine and environmental sciences, and draws comparisons with conventional technologies. The course is intended to cover the broad concept of biotechnology - its historical and contemporary relevance.

COMPUTING
Although computing is not available as a major to science students, it is available as a minor; computing courses may be chosen as electives within science. Computer Science is the study of the processes underlying the design of software and hardware computer systems.

ENGG1811
The objective of this course is for engineering students and other professionals to acquire computing skills for solving computational problems in engineering, science and business, such as simulation, numerical methods, process control

and information management. Topics covered include: introduction to computer architectures and networks, effective use of web resources, data analysis and data management using office tools such as spreadsheets and databases, use of programming structures to customise solutions and for presentation of information, Introduction to emerging technologies and how they may be exploited to produce innovative solutions. Additionally, this course is designed as a stand-alone course for students who want some background in computing but who do not intend to study further computing courses.

Many Engineering degrees specify this as the standard first year computing course. After studying ENGG1811, if you decide to take more computing, you will need to progress via COMP1911 or COMP1917.

CHEMISTRY

Chemistry is the science of matter and molecules – their structure, properties and transformations. It is not only a fundamental science, but it is also a core science which provides underpinning knowledge in many interdisciplinary fields including nanotechnology, industrial chemistry, medical science, pharmacology, and environmental and marine science.

CHEM1001 Introductory Chemistry is a course designed for students who have no background in Chemistry in years 11 and 12. It covers the fundamental knowledge that you will require in order to study further Chemistry courses, and it is also an ideal choice for a General Education course for students who are interested in enriching their degree with a science-based course.

CHEM1011 Essentials of Chemistry 1A is the entry course to studies in chemistry. It may be taken as a stand-alone introduction to chemistry or coupled with CHEM1021 to provide a broad general first year of chemistry. Enrolment in this course assumes that you have a basic knowledge of chemistry (this is taken as NSW year 11 Chemistry or equivalent). If you do not meet this level it is strongly recommended that you enrol in a bridging course in chemistry.

CHEM1021 Essentials of Chemistry 1B builds on CHEM1011 to complete a first level of chemistry. The prerequisite for CHEM1021 is a pass in CHEM1011.

CHEM1031 Higher Chemistry 1A is a course for students who have a very good background in chemistry and who wish to pursue studies which require a strong chemistry background. Entry to this course is limited to students who have a very good standard in high school chemistry (HSC 2U Chemistry (75-100) or equivalent).

CHEM1041 Higher Chemistry 1B builds on CHEM1031 to complete a first year of chemistry. The prerequisite for CHEM1041 is a pass in CHEM1031. CHEM1041 includes experimental project work.

Other tailored Chemistry courses are offered for students enrolled in special programs such as: **CHEM1831 Chemistry for Health, Exercise, and Medical Science** in session 1, offered to students in Program 3870 (Health and Exercise Science), and **CHEM1829 Biological Chemistry for Optometry Students B** in session 2, offered to students in Programs 3952 (Optometry/Science) and 3950 (Optometry).

GEOGRAPHY

Geography concerns the physical and human environment, why it varies from place to place, and how and why it changes. With the combination of specialist skills and the general understanding of the relationship between various branches of the physical and social sciences which geography provides, it would be appropriate to include geography in the first year of a science degree. The 6 UOC courses offered in first year have no prerequisites.

GEOS1601 Australian and Global Geographies is a 6 UOC course taught in Session 2. Topics covered include the geography of indigenous and invasion Australia; patterns and consequences of economic and cultural diffusion and change; socio-economic impacts of industrial change; emergence of global information economies, and more.

GEOS1701 Environmental Systems and Processes is a 6 UOC course taught in Session 1. Topics covered include earth, atmosphere and biosphere systems, weather and climate, water resources, soils and land degradation, fluvial and coastal processes and landforms, biodiversity and Australian biotic patterns.

GEOLOGY

Geology is concerned with the evolution of the planet Earth, its biosphere and atmosphere, and it includes the study of the chemistry, physics and biology of geological processes. It is therefore an appropriate course to include in the first year of a science degree.

GEOS1111 Fundamentals of Geology is a 6 UOC course taught in Session 2. It provides a sound basis in geology for potential geologists, mining and petroleum engineers and environmental earth scientists, and covers mineral and rock properties and formation, geological history, and methods for analysis, description and definition.

GEOS1211 Environmental Earth Science is a 6 UOC course taught in Session 2. The course examines the nature and evolution of Earth, from crystal structure and fossils to the forces that drive earthquakes and volcanoes.

MATHEMATICS

Mathematics provides an essential base for all the sciences. The growth in computer technology has increased dramatically the demand for mathematical

and statistical expertise in the community. Consequently at least one session of Level I Mathematics is strongly recommended for all students in Science programs.

MATH1031 Mathematics for Life Sciences and **MATH1041 Statistics for Life and Social Sciences** are single session courses each worth 6 UOC. They are designed to provide the basic mathematics and statistics needed for students in the Life Sciences. Only a limited number of second year mathematics courses are available to students who take MATH1031. MATH1041 is also available to students studying MATH1131 and MATH1231 or MATH1141 and MATH1241. However it cannot be taken together with MATH1081 due to limitations on the number of courses that can be taken in the one discipline. The assumed knowledge for MATH1031 and MATH1041 is the same as for MATH1011.

MATH1041 Statistics for Life and Social Sciences is a 6 UOC course offered in Session 2. It covers probability, random variables, independence. Discrete distributions, Poisson and binomial distributions, Data analysis, Descriptive statistics, Sampling, Continuous distributions, the normal distribution. Estimation of mean and variance, Tests of hypotheses, Linear regression and correlation, Analysis of variance, Tests for goodness of fit and Bayesian statistics are also covered.

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MATH1131 Mathematics 1A and **MATH1231 Mathematics 1B** are single session courses each worth 6 UOC. They provide a wider coverage of Mathematics than the General Mathematics courses. Students required (or intending) to do any Mathematics (and some other courses like Physics) after first year must do either these courses or the corresponding Higher Mathematics 1 courses (described below).

This course assumes a level of knowledge equivalent to a combined mark of at least 100 in HSC Mathematics and Mathematics Extension 1, although students whose marks are in the range 100-115 should seek advice from the School of Mathematics and Statistics. Students who are required to do MATH1131 and MATH1231 and do not have the assumed knowledge can either attend a Mathematics Bridging course (2nd Feb to 25th Feb, 2009), with exams on the 26th Feb, for details see http://www.unsw.edu.au/futureStudents/nonAward/sad/bridgeprog.html) or take MATH1011 General Mathematics 1B is Session 1, then MATH1131 in Session 2 and MATH1231 in the following Summer Session. These alternatives are also strongly recommended for students who did not study HSC Mathematics Extension 1.

MATH1141 Higher Mathematics 1A and **MATH1241 Higher Mathematics 1B** are single session courses each worth 6 UoC. Their coverage is similar to MATH1131 and MATH1231 but in greater depth, and are compulsory courses in most Advanced Mathematics plans. They are intended for students who obtained a good mark (at least 175) in HSC Mathematics Extension 1 and Extension 2 or a very good mark (at least 140) in HSC Mathematics and Mathematics Extension 1. Students who are considering enrolling in these courses should consult a Mathematics adviser at enrolment.

MATH1081 Discrete Mathematics is a course worth 6 UOC which can be taken in conjunction with Mathematics 1A and 1B (MATH1131 and MATH1231) or Higher Mathematics 1A and 1B (MATH1141 and MATH1241). MATH1081 is highly recommended for Science students taking a Mathematics major and is compulsory in most Advanced Mathematics Study Plans.

MATH1151 Mathematics for Actuarial Studies and Finance 1A and **MATH1251 Mathematics for Actuarial Studies and Finance 1B** are 6 UOC courses offered in Session 1 and 2 respectively. It is intended for students in some Advanced Mathematics plans or some double degree BCom/BSc programs. Students taking this course should have taken HSC Mathematics Extension 1 and have achieved a combined mark of at least 140 in Mathematics and Mathematics Extension 1 or 180 in Mathematics Extension 1 and Extension 2.

PHYSICS

Physics is the fundamental natural science dealing with the properties and forms of matter and energy. It provides the basic concepts for the development of many other sciences and engineering.

PHYS1111 Fundamentals of Physics is a 6 UOC introductory general Physics course suitable for students with limited Physics or Mathematics background from high school (for example students with a low Physics HSC performance, or students who may not have done any Physics since their Year 10 science studies). The course covers a broad range of introductory Physics topics but in less mathematical detail than the Physics 1A and 1B subjects. It is recommended that appropriate Mathematics courses be taken concurrently.

Since this course is a self-contained university level introduction to Physics, it will be an attractive option for students with an interest in physical science (who possibly could not study the subject at high school) who want a single session of Physics only – it is a course open to students of all disciplines. In particular we would encourage students of the Life Sciences to choose PHYS1111as a relevant elective.

The course is also ideal for students intending to study physical sciences, engineering or life sciences but who need an elementary level course in Physics, possibly as a preparation for the Physics 1A courses.

PHYS1121 Physics 1A and PHYS1221 Physics 1B are each single - session 6 units of credit 'companion' courses. They are calculus-based courses giving an in-depth treatment of the fundamental topics of mechanics, thermal physics, and waves in Physics 1A, and electricity and magnetism, physical optics, introductory quantum mechanics and an introduction to solid state and

semiconductor physics in Physics 1B. The assumed knowledge is Mathematics at HSC level (HSC Mathematics 90-100 or preferably Mathematics Extension 1 1-50; Mathematics Extension 2 1-100) and some Science (preferably HSC Physics 65-100; or 4U Science 1-50 although HSC Chemistry 75-100; or 3U Science 100-150 are acceptable). Mathematics 1A and 1B (MATH1131 and MATH1231) or Higher Mathematics 1A and 1B (MATH1141 and MATH1241) are co-requisites.

PHYS1131 Higher Physics 1A and PHYS1231 Higher Physics 1B:
Students planning on studying a major in physics should enrol in PHYS1131 Higher Physics 1A or PHYS1231 Higher Physics 1B. These courses are each 6 unit of credit single session courses. They are calculus based courses which cover similar topics as PHYS1121 and PHYS1221 but in greater depth.

Students who are required to do PHYS1121 and PHYS1221 but do not meet the entry requirements can take PHYS1111 Fundamentals of Physics in Session 1, and if the theory component is passed, may then undertake the fast track versions of PHYS1121 and PHYS1221 which run in Session 2 and in the Summer Session respectively.

PHYS1160 Introductory Astronomy and the Search for Life Elsewhere is a new course which may be run in Session 2, 2009, pending university approval. Please check availability with the School of Physics in May 2009. This course will provide an introduction to the current state of knowledge on planets, stars, galaxies and cosmology. It will look at how Earth has developed as a habitable planet and look at the prospects for finding life elsewhere in our solar system and beyond.

For students going on to study Physics and Astronomy, this course will provide an introduction to the more advanced astronomy and astrophysics courses in higher years. It will also provide an introduction to solar system science, which is not covered in the higher year courses. The astrobiology component will broaden the student experience through the cross disciplinary links with biology and Earth sciences.

PHYS1211/PHYS1249 Energy and Environmental Physics These courses extend from the Fundamentals of Physics course to consider the physics behind many environmental issues, in particular the use of energy and radiation. This course is a requirement for most aviation students, but is also available as an elective for other students who wish to extend their knowledge of physics to important problems in society. PHYS1211 is a 6 UOC course taken in Session 2. PHYS1249 is a 3 UOC course, which covers the first half of PHYS1211, also in Session 2.

PSYCHOLOGY
Psychology, as the scientific study of behaviour and of mental life, provides a useful background for students whether or not they want to pursue psychology

as a profession. Not only does it provide an awareness of the human dimensions of many tasks and situations, but the observational, critical thinking, writing and research skills students will develop are relevant to a wide variety of other areas. Students, with training in the biological or physical sciences and knowledge of such areas of psychology as assessment, organisational psychology, social psychology and cognitive psychology, are very well prepared for entry into the more technological areas of business and industry. Students wishing to become professional psychologists should aim to complete a bachelor degree which includes four years of Psychology such as the BPsychol degree, the BSc (3970, 3972) degree, or degrees combined with the BSc (Science/Arts, Commerce/Science, Engineering/Science, Science/Law and Science/Social Science).

There are two First Year courses: **PSYC1001** Psychology 1A (Session 1) and **PSYC1011** Psychology 1B (Session 2), each worth 6 UOC. **PSYC1001** deals with the social bases of behaviour and it covers the areas of development, personality and individual differences, social, cross-cultural, states of consciousness and health psychology. **PSYC1011** is concerned with the biological bases of behaviour and it covers the areas of physiological, learning, motivation and emotion, perception, memory and cognition and abnormal psychology. The two courses may be taken individually but both are required for progression to Level II courses. Whilst there are no prerequisites a high proficiency in English is deemed necessary to pass all psychology courses.

Whilst there are no prerequisites a high proficiency in English is deemed necessary to pass all psychology courses.

SCIENCE COMMUNICATION

Whose discovery hits the headlines? Which invention receives millions of dollars in backing to really make a difference in the world? Why are debates about stem cell research or environmental issues so contentious? Why is it that you find science fascinating, yet your brother or sister turns their nose up at the mere mention of anything scientific? These questions are addressed by the field of science communication. Courses in science communication cover broad concerns about how science is perceived in society as well as development of specific abilities in understanding an audience and tailoring a message to have the impact that you desire.

There are two first-year courses in Science Communication. **SCOM1011** Science, Technology, Society and Environment (Session 1) looks at a range of science-in-society issues and perspectives. Students report that it is an eye opener about how science is perceived. You are eligible to take **SCOM2021** Professional Science Communication (Session 2) once you have earned 24 UOC, that is, you have completed one full session of study. **SCOM2021** is a practical, hands-on course that builds your capacity to complete science communication projects and please both client and audience.

SCIF courses: The Science Communication unit also coordinates the SCIF courses, which are required for the B Med Sci and B Adv Science. A new course, SCIF1101 Science Fundamentals / Science Foundations is being offered in session 2, and it is highly recommended for all other entering Science students.

SAFETY, HEALTH & ENVIRONMENT

There are emerging changes in the way organizations manage their OHS and environmental risks, with the emergence of the safety, health and environmental (SHE) practitioner. This person needs a different set of skills than the traditional OHS or environmental specialist. Safety, Health and Environment is an emerging field. SHE jobs are available in all major industries and throughout the commercial sector. Opportunities exist for graduates to work in safety and environmental risk assessment, management and control of SHE risks, and SHE research. SHE personnel still need the specialist skills that were relevant to the traditional organizational problems (for example, dealing with manual handling, overuse syndromes, hazardous plant, hazardous chemicals, noise, infectious agents, spills, fires, environmental pollution, waste disposal, and so on), but they also needed a higher level of management skills to match their new roles in the organization and technical knowledge of new areas such as risk management, environmental protection, emergency planning and rehabilitation. The SHE practitioner can specialize in a range of areas, including of course safety or environmental science, but also chemistry, biological science, health science, engineering, and so on.

Please refer to the recommended courses detailed in the 3970 templates on page 18.

VISION SCIENCE

Vision Science is the study of the scientific basis of how we see. It is based on integrating our understanding of the anatomy and physiology of the eye and visual system, the psychophysics of visual perception, the neuroscience of the visual system and how to measure visual performance in normal and abnormal visual systems.

VISN1211 Vision Science 1 is a 6 UOC course that provides an understanding of the basic anatomy and physiology of the eye plus an introduction to clinical methods of measuring visual function. This course also introduces the student to important generic skills such as library information skills, communication, time management, critical thinking and career choices in vision science. While there are no prerequisites for this course, students are expected to have a high proficiency in written and verbal English.

VISN1231 Optics is a 6 UoC course that provides an understanding of physical and geometrical optics with an introduction to ocular refractive error. This course covers the Physical Optics inherent in the wave nature of light as well as

introducing Geometrical Optics; the description of the basic properties of lenses, optical systems and model eyes. Clinical applications of this theory will be used throughout the course. Students are required to have completed MATH1131 Math's 1A and either completed or concurrently enrolled in PHYS1121 Physics 1A before enrolling in this course.

SOME FIRST YEAR COURSES OFFERED BY OTHER FACULTIES

ACCT1501 Accounting and Financial Management 1A is a 6 UOC course offered by the Australian School of Business for Advanced Mathematics students. It illustrates the analysis and design of a financial accounting system which processes financial data and produces financial reports geared to the information needs of interested parties.

ECON1101 Microeconomics 1 is a 6 UOC course offered by the Australian School of Business for Advanced Mathematics students. It introduces economics as a social science: scarcity, resource allocation and opportunity cost; an introductory analysis of consumer behavior; the economics of firms and markets; production and costs; the classification and analysis of markets; efficiency concepts and market failure; the gains from international trade and the impact of trade restrictions; economic growth and structural change.

FINS1613 Business Finance looks at the essential aspects of financial decision-making. Financial mathematics is used to value securities and make capital expenditure decisions. Portfolio theory is introduced to provide a foundation for determining the relationship between expected risk and returns in financial and real asset investments.

ARTS 1300 Understanding Science, Technology and Society (Session 1)

ARTS 1301 Cosmos and Culture: Science in History (Session 2)

HUMS1000 Thinking about Reasoning: Thinking clearly, reasoning productively, and arguing well. These are skills essential in life in general and at University in particular. Philosophy has a lot to say about these practices, and also about the whole nature of human reason. Also involves practical work on reasoning and argumentative strategies, and an introductory investigation into what good reasoning actually is.

Templates for Compulsory and Recommended 1st year Courses in Science Majors

3970 BACHELOR OF SCIENCE (B Sc)

Please also refer to the undergraduate section in the online handbook for detailed information
http://www.handbook.unsw.edu.au/undergraduate/programs/current/3970.html

S1 Session One
S2 Session Two

CHEM* Students with 75 or more in HSC Chemistry are encouraged to consider CHEM1031 & CHEM1041 in place of CHEM1011 & CHEM1021.

MATH* Choose either MATH1131, MATH1141 or MATH1031 and either MATH1231, MATH1241 or MATH1041

MATH# Choose either MATH1131 or MATH1141 (Session 1) and MATH1231 or MATH1241 (Session 2)

SCIF1101… Science Fundamentals / Science Foundations is recommended for all students it will be available in session 2.

Chosen Major		Courses			
Anatomy	S1	BABS1201		CHEM1011	MATH1031
	S2	BIOS1101			MATH1041
Biochemistry	S1	BABS1201		CHEM1011*	MATH1031
	S2	BIOS1101		CHEM1021*	MATH1041
Biological Science	S1	BABS1201	BIOS1301	CHEM1011	
	S2		BIOS1101		MATH1041

Biotechnology	S1	BABS1201		CHEM1011*	MATH1031
	S2		BIOS1101 or BIOT1011	CHEM1021*	MATH1041
Chemistry	S1	CHEM1011 or CHEM1031			MATH*
	S2	CHEM1021 or CHEM1041			MATH*
Ecology	S1 S2	BABS1201		GEOS1701	
			BIOS1101 BIOS1301		MATH1041
Environmental Earth Science	S1	BIOS1301	GEOS1701		
	S2	BIOS1101	GEOS1111	GEOS1211	MATH1041
Food Science	S1	BABS1201	CHEM1011	FOOD1120	
	S2		CHEM1021	FOOD1130	MATH1041
Genetics	S1	BABS1201		CHEM1011	MATH1031
	S2	BIOS1101		CHEM1021	MATH1041
Geography	S1	BIOS1301	GEOS1701		
	S2		GEOS1601	MATH1041 or SLSP1001	
Geology	S1				
	S2	GEOS1111	GEOS1211	MATH1041	
Marine Science (Marine Biology)	S1	BABS1201	BIOS1301		
	S2		BIOS1101		MATH1041
Marine Science (Physical Oceanography)	S1	MATH1131	PHYS1121		
	S2	MATH1231	PHYS1221		
Marine Science (Marine Geology)	S1				
	S2	GEOS1111	GEOS1211		

Materials Science	S1	MATH1131	CHEM1011		
	S2	MATH1231	CHEM1021		
Mathematics	S1	MATH#	MATH1081		
	S2	MATH#			
Medical Microbiology and Immunology	S1	BABS1201		CHEM1011	MATH1031
	S2	BIOS1101		CHEM1021	MATH1041
Microbiology	S1	BABS1201		CHEM1011	MATH1031
	S2	BIOS1101		CHEM1021	MATH1041
Molecular Biology	S1	BABS1201		CHEM1011	MATH1031
	S2	BIOS1101		CHEM1021	MATH1041
Physical Oceanography	S1	MATH#	MATH1081	PHYS1121	
	S2	MATH#		PHYS1221	
Pharmacology	S1	BABS1201	CHEM1011	1 x MATH1	
	S2	other BIOS1	CHEM1021		
Physics	S1	MATH#	PHYS1121/ PHYS1131		
	S2	MATH#	PHYS1221/ PHYS1231		
Physiology	S1	BABS1201 or BIOS1101	CHEM1011		
	S2				MATH1041
Psychology	S1	PSYC1001			MATH1031
	S2	PSYC1011			MATH1041
Safety, Health & Environment	S1	MATH1031	BABS1201		
	S2	MATH1041	BIOS1101		
Spatial Information Systems	S1	BIOS1301	GEOS1701		
	S2	BIOS1101	GEOS1211		MATH1041
Statistics	S1	MATH#	MATH1081		
	S2	MATH#			

Toxicology	S1	BABS1201	CHEM1011	MATH1031	
	S2	BIOS1101	CHEM1021	MATH1041	
Vision Science ^	S1	BABS1201	CHEM1031	PHYS1121	MATH1131
	S2	BIOS1101 or PSYC1011	CHEM1829	VISN1211	VISN1231

3972 BACHELOR OF SCIENCE - Advanced Science

NOTE: Students wanting to transfer to other Advanced Science/Advanced Mathematics degrees (e.g. Advanced Mathematics, Advanced Science/Arts, Advanced Science/Social Science, and Advanced Mathematics/Arts) will have to specify their choice when they accept their offer online.

NOTES:

MATH* the higher level Maths courses should be taken whenever possible.

CHEM* the higher level Chemistry courses may be substituted. Students with 75 or more in HSC Chemistry are strongly encouraged to consider CHEM1031 & CHEM1041 in place of CHEM1011 & CHEM1021

PYSC^ Students intending to apply for transfer to 3952 must complete CHEM1829 instead of PSYC1011

SCIF1021 : Students in these study plans **must** enrol in SCIF1021 in Session 1.

^ Students intending to apply for transfer to 3952 Bachelor of Optometry Bachelor of Science in Stage 2 need to discuss this with the School of Optometry and Vision Science.

For detailed information refer to the *Undergraduate Online Handbook*:
http://www.handbook.unsw.edu.au/undergraduate/programs/current/3972.html

Study plan		**Courses specified in first year of study plan**			
Anatomy	S1 S2	BABS1201 BIOS1101	CHEM1011* CHEM1021*		SCIF1021
Biochemistry	S1 S2	BABS1201 BIOS1101	CHEM1031 CHEM1041	MATH1031*	SCIF1021
Biological Science	S1 S2	BABS1201 BIOS1101	CHEM1011*	BIOS1301	SCIF1021
Biotechnology	S1 S2	BABS1201 BIOT1011	CHEM1011* CHEM1021*		SCIF1021

Chemistry	S1 S2		CHEM1031 CHEM1041		SCIF1021
Climate Science	S1 S2	MATH1131* MATH1041	CHEM1011* BIOS1101	PHYS1121 GEOS1211	SCIF1021
Ecology	S1 S2	BABS1201 BIOS1101	CHEM1011*	BIOS1301	SCIF1021
Genetics	S1 S2	BABS1201 BIOS1101	CHEM1011* CHEM1021*	MATH1131*	SCIF1021
Geochemistry	S1 S2		CHEM1031 CHEM1041		SCIF1021
Geosciences	S1 S2		GEOS1701 GEOS1111	 GEOS1211	SCIF1021
Marine and Coastal studies	S1 S2	BABS1201 BIOS1101	GEOS1111 GEOS1211		SCIF1021
Mathematical Physics	S1 S2		PHYS1131 PHYS1231*	MATH1131* MATH1231*	SCIF1021
Medical Chemistry	S1 S2	BABS1201	CHEM1031 CHEM1041	MATH1131*	SCIF1021
Medical Microbiology and Immunology	S1 S2	BABS1201 BIOS1101	CHEM1011* CHEM1021*		SCIF1021
Microbiology	S1 S2	BABS1201 BIOS1101	CHEM1011* CHEM1021*	MATH1131*	SCIF1021
Molecular Biology	S1 S2	BABS1201 BIOS1101	CHEM1011* CHEM1021*	MATH1131*	SCIF1021
Neuroscience	S1 S2	BABS1201 BIOS1101	CHEM1011* CHEM1021*	PSYC1001 PSYC1011	SCIF1021
Pharmacology	S1 S2	BABS1201	CHEM1011* CHEM1021*		SCIF1021
Physical Oceanography	S1 S2	MATH1141 MATH1241	MATH1081	PHYS1121 PHYS1221	SCIF1021
Physics	S1 S2	MATH1131* MATH1231*	PHYS1131 PHYS1231		SCIF1021
Physics and Astronomy	S1 S2	MATH1131* MATH1231*	PHYS1131 PHYS1231		SCIF1021
Physics and Computing	S1 S2	MATH1131* MATH1231*	PHYS1131 PHYS1231	COMP1911 COMP1921	SCIF1021
Physiology	S1 S2	BABS1201 or BIOS1101			SCIF1021
Psychology	S1 S2	PSYC1001 PSYC1011			SCIF1021
Vision Science ^	S1 S2	BABS1201 VISN1211	CHEM1031 PSYC1011^	MATH1131 VISN1231	SCIF1021 PHYS1121

3986 BACHELOR OF SCIENCE - Advanced Mathematics

For detailed information refer to the *Undergraduate Online Handbook*:
http://www.handbook.unsw.edu.au/undergraduate/programs/current/3986.html

Applied Mathematics	S1 S2	MATH1141 MATH1241	MATH1081	ENGG1811	SCIF1021
Pure Mathematics	S1 S2	MATH1141 MATH1241	MATH1081	ENGG1811	SCIF1021
Quantitative Risk	S1 S2	ACCT1501	ECON1101	SCIF1021 FINS1613	MATH1151 MATH1251
Statistics	S1 S2	MATH1141 MATH1241	MATH1081	ENGG1811	SCIF1021

3988 BACHELOR OF ENVIRONMENTAL SCIENCE

For further information refer to the Online Handbook:
http://www.handbook.unsw.edu.au/undergraduate/programs/current/3988.html

S1 S2	ENVS1011 BIOS1101	GEOS1701 GEOS1211	CHEM1011 MATH1041*	Specialisation and Elective*

NOTES: (3988 cont'd)

MATH* Students who choose the Oceanography specialisation must take MATH1131 and MATH1231 not MATH1041

Elective* from list of specialisations

3991 BACHELOR OF MEDICAL SCIENCE

For detailed information refer to the Online Handbook:
http://www.handbook.unsw.edu.au/undergraduate/programs/current/3991.html

S1	BABS1201	CHEM1011 or CHEM1031	SCIF1111	Elective*
S2	BIOS110 or BIOS23021 or BABS2202	CHEM1021 or 1041	ANAT1521	Elective*

NOTES:

Elective* recommended electives are Mathematics, Physics or Psychology

3993 SCIENCE COMMUNICATION

For detailed information refer to the Online Handbook:
http://www.handbook.unsw.edu.au/undergraduate/programs/current/3993.html

S1 S2	SCOM1011 SCOM2021	18 units from two Science Schools	18 units electives

3617 NANOTECHNOLOGY

For detailed information refer to the Online Handbook:
http://www.handbook.unsw.edu.au/undergraduate/programs/2008/3617.html

S1	BABS1201	CHEM1011 or CHEM1031	MATH1131 or MATH1141	PHYS1121	
S2	MATS9520 (3 UOC)	NANO1001 (3 UOC)	CHEM1021 or CHEM1041	MATH1231 or MATH1241	PHYS1221

3980 AVIATION (flying)

For detailed information:
- refer to the Online Handbook
http://www.handbook.unsw.edu.au/undergraduate/programs/2009/3980.html
- contact the Department of Aviation
aviation@unsw.edu.au

3981 AVIATION (Management)

For detailed information:
- refer to the Online Handbook
http://www.handbook.unsw.edu.au/undergraduate/programs/2009/3981.html
- contact the Department of Aviation
aviation@unsw.edu.au

3052 BIOTECHNOLOGY

For detailed information:
- refer to the Online Handbook
http://www.handbook.unsw.edu.au/undergraduate/programs/2009/3052.html
- contact the School of Biotechnology and Biomolecular Sciences
babs@unsw.edu.au

3135 MATERIALS SCIENCE AND ENGINEERING

For detailed information:

- refer to the Online Handbook

http://www.handbook.unsw.edu.au/undergraduate/programs/2009/3135.html

- contact the School of Materials Science and Engineering
  f.lau@unsw.edu.au

3432 PSYCHOLOGY

For detailed information:

- refer to the Online Handbook

http://www.handbook.unsw.edu.au/undergraduate/programs/2009/3432.html

- Contact the School of Psychology
  enquiries@psy.unsw.edu.au

3952 OPTOMETRY/SCIENCE

For detailed information:

- refer to the Online Handbook

http://www.handbook.unsw.edu.au/undergraduate/programs/2009/3952.html

- Contact the School of Optometry and Vision Science
  optometry@unsw.edu.au

For all **COMBINED DEGREES** see Advisors from the Science Student Centre and the relevant *Online Handbook* entry:

3930 SCIENCE/ARTS
http://www.handbook.unsw.edu.au/undergraduate/programs/2009/3930.html

3935 SCIENCE/SOCIAL SCIENCE
http://www.handbook.unsw.edu.au/undergraduate/programs/2009/3935.html

3931 ADVANCED SCIENCE/ARTS
http://www.handbook.unsw.edu.au/undergraduate/programs/2009/3931.html

3936 ADVANCED SCIENCE/SOCIAL SCIENCE
http://www.handbook.unsw.edu.au/undergraduate/programs/2009/3936.html

3933 ADVANCED MATHEMATICS/ARTS
http://www.handbook.unsw.edu.au/undergraduate/programs/2009/3933.html

4075 SCIENCE/EDUCATION
http://www.handbook.unsw.edu.au/undergraduate/programs/2009/4075.html

Section 6

Useful Points of Contact

Science Student Centre
Tel: +61 2 9385 6125 / +61 2 9385 7788
E-mail: sso@unsw.edu.au, science@unsw.edu.au
Website: http://www.science.unsw.edu.au
Address: Room 128, Sir Robert Webster Building (G14)

NOTE: e-mail correspondence with the Science Student Centre must be from the student's Unimail account.

Student Central
Tel:+6 12 9385 8500
E-mail: studentcentral@unsw.edu.au
Website:
https://my.unsw.edu.au/student/academiclife/StudentCentralKensington.html
Address: Chancellery Building, lower Ground Floor

Schools

For a full list and a brief description of the schools please visit
http://www.science.unsw.edu.au/schools-of-the-unsw-faculty-of-science/

Department of Aviation
Tel: +61 2 9385 6767 / +61 29385 5756
E-mail: aviation@unsw.edu.au
Website: http://www.aviation.unsw.edu.au/
Address: Second Floor, Room 205, Old Main Building (K15)

School of Biological, Earth and Environmental Sciences (BEES)
Tel: +61 2 9385 2067
E-mail: bees@unsw.edu.au
Website: http://www.bees.unsw.edu.au/
Address: Room G27, Ground Floor, Biological Sciences Building (D26)

School of Biotechnology and Biomolecular Sciences (BABS)
Tel: +61 2 9385 8047 / +61 2 9385 2029
E-mail: babs@unsw.edu.au
Website: http://www.babs.unsw.edu.au/
Address: Room 103, Level 1 (near Biomed theatres), Biological Sciences Building (D26)

School of Chemistry
Tel: +61 2 9385 4666 / 4651
E-mail: chemistry@unsw.edu.au
Website: http://www.chem.unsw.edu.au/
Address: Room 105, Dalton Building

School of Mathematics and Statistics
Tel: +61 2 9385 7111 / +61 2 9385 7112
E-mail: fy.MathsStats@unsw.edu.au
http://www.maths.unsw.edu.au/
Address: First Year Office, Room RC-3072, the Red Centre (H13)

School of Materials Science and Engineering
Tel: +61 2 9385 4436
E-mail: f.lau@unsw.edu.au
Website: http://www.materials.unsw.edu.au/
Address: Level 1, Material Sciences Building (E8)

School of Optometry and Vision Science
Tel: +61 2 9385 4639
E-mail: optometry@unsw.edu.au
Website: http://www.optom.unsw.edu.au/
Address: Room 3.003, Level 3, Rupert Myers Building (North Wing) (M15)

School of Physics
Tel: +61 2 9385 4553 / +61 2 3385 5649
E-mail: info@phys.unsw.edu.au
Website: http://www.phys.unsw.edu.au/
Address: First Year Office, LG03, Lower Ground Floor, Old Main Building (K15)

School of Psychology
Tel: +61 2 9385 3041
E-mail: enquiries@psy.unsw.edu.au
Website: http://www.psy.unsw.edu.au/
Address: Level 10, Mathews Building (F23)

School of Risk and Safety Sciences
Tel: +61 2 9385 4144 / +61 2 9385 5574 / +61 2 9385 5343
E-mail: safety@unsw.edu.au
Website: http://www.srss.unsw.edu.au/
Address: Level 1, West Wing, Old Main Bldg

Science Communication Program
Tel: +61 2 9385 2748
E-mail: willrifkin@unsw.edu.au

Website: http://www.scom.unsw.edu.au/
Address: Room G05, Biological Sciences Bldg (D26)

Important Links:

MyUNSW: http://my.unsw.edu.au

Handbook: http://www.handbook.unsw.edu.au

Timetable: http://www.timetable.unsw.edu.au

Fees: https://my.unsw.edu.au/student/fees/FeesMainPage.html

International Student Services:
http://www.international.unsw.edu.au/current/currenthome.html

A-Z Guide: https://my.unsw.edu.au/student/atoz/ABC.html

Forms: http://www.science.unsw.edu.au/current/forms.html

Glossary: http://www.handbook.unsw.edu.au/2007/glossary.html

Student Central:
https://my.unsw.edu.au/student/academiclife/StudentCentralKensington.html

Library: http://www.library.unsw.edu.au

UNSW
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