Faculty of Science  
School of Physics  

COSC1001/1901: Computational Science in MATLAB  
Semester 2, 2012 | 3 Credit Points | Coordinator: Dr Pulin Gong (p.gong@physics.usyd.edu.au)

1 Introduction

COSC1001/1901 provides an introduction to scientific problem solving using MATLAB. The scientific problems addressed will be drawn from a wide variety of disciplines, and no previous programming experience in MATLAB (or any other language) is expected. The emphasis is on problem solving rather than programming, with the aim of providing an introduction to the use of computers in science for students with diverse backgrounds and interests.

COSC1901 students will share the same lecture and practical sessions as COSC1001 students. However, COSC1901 students will be given additional problems in the practical sessions and introduced to more advanced MATLAB features and more advanced problem solving techniques.

1.1 Assumed Knowledge and Prohibitions

It is assumed that students have completed HSC Mathematics, Linear Algebra

Recommended concurrent units of study for COSC1001: COSC1002
Recommended concurrent units of study for COSC1901: COSC1902
COSC1001 may not be counted with COSC1901

2 Course Aims, Learning Objectives and Graduate Attributes

2.1 Course Aims

MATLAB is an interactive environment including a programming language and graphics commands for two- and three-dimensional display of data and functions. You will learn to use MATLAB to solve a variety of problems commonly encountered in the real world, and be able to present visualisations of your solutions to facilitate understanding of the results. Examples of the kinds of problems you will be able to solve include solution of simultaneous linear equations, data fitting and visualisation. You will be able to recognise situations when the use of MATLAB will lead to a simpler and quicker solution to a problem than an analytical approach. Whilst the unit of study is not a complete, formal course in MATLAB, nevertheless you will develop basic programming skills, and an understanding of how to expand your repertoire to include more complex MATLAB features.

2.2 Learning Outcomes

After successfully completing this unit, you should be able to demonstrate:

1. to solve scientific problems using a computer, for example, construct a mathematical model of a system (or modify an existing model), use a computer to solve the model for given parameters and interpret the results;
2. to attain a level of competency in MATLAB, including understanding and being able to use variables, arrays and matrices, understanding and being able to use control structures involving logical statements, and being able to use MATLAB interactively as well as writing simple m-files and user-defined functions;
3. to understand and be able to apply basic numerical methods and data analysis procedures, for example methods for the solution of linear equations and for data fitting and visualisation;
4. to understand some of the ways in which computation can lead to misleading results, including a model being invalid, and numerical errors such as round-off error;
5. the ability to solve simple science problems and to interpret results;
6. the ability to use contemporary technology such as computers;
7. the ability to work with others to solve problems;
8. the ability to communicate the results of calculations to a wider audience.

2.3 Graduate Attributes

Graduate Attributes are generic attributes that encompass not only technical knowledge but additional qualities that will equip students to be strong contributing members of professional and social communities in their future careers. The overarching graduate attributes identified by the University relate to a graduate’s attitude or stance towards knowledge, towards the world, and towards themselves. These are understood as a combination of five overlapping skills or abilities, the foundations of which are developed as part of specific disciplinary study. For further details please refer to the Science faculty website at: http://www.itl.usyd.edu.au/graduateAttributes/facultyGA.cfm?faculty=Science

<table>
<thead>
<tr>
<th>Graduate Attributes</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A Research and Inquiry</strong></td>
<td></td>
</tr>
<tr>
<td>A1. Apply scientific knowledge and critical thinking to identify, define and analyse problems, create solutions, evaluate opinions, innovate and improve current practices.</td>
<td>2, 3, 4, 5</td>
</tr>
<tr>
<td>A2. Gather, evaluate and deploy information relevant to a scientific problem.</td>
<td>1, 3, 5</td>
</tr>
<tr>
<td>A3. Design and conduct investigations, or the equivalent, and analyse and interpret the resulting data.</td>
<td>1, 2, 3, 4, 5, 6</td>
</tr>
<tr>
<td>A4. Critically examine the truth and validity in scientific argument and discourse, and evaluate the relative importance of ideas.</td>
<td>4, 5</td>
</tr>
<tr>
<td><strong>B Information Literacy</strong></td>
<td></td>
</tr>
<tr>
<td>B1. Use a range of searching tools (such as catalogues and databases) effectively and efficiently to find information.</td>
<td>4, 6</td>
</tr>
<tr>
<td>B2. Access a range of information sources in the science disciplines, for example books, reports, research articles, patents and company standards.</td>
<td>4, 6</td>
</tr>
<tr>
<td>B3. Critically evaluate the reliability and relevance of information in a scientific context.</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>B5. Use information technology to gather, process, and disseminate scientific information.</td>
<td>4, 6, 8</td>
</tr>
<tr>
<td><strong>C Communication</strong></td>
<td></td>
</tr>
<tr>
<td>C2. Write and speak effectively in a range of contexts and for a variety of different audiences and purposes.</td>
<td>2, 6, 8</td>
</tr>
<tr>
<td>C4. Present and interpret data or other scientific information using graphs, tables, figures and symbols.</td>
<td>3, 4</td>
</tr>
<tr>
<td>C5.</td>
<td>Work as a member of a team, and take individual responsibility within the group for developing and achieving group goals.</td>
</tr>
<tr>
<td>C6.</td>
<td>Take a leadership role in successfully influencing the activities of a group towards a common goal.</td>
</tr>
</tbody>
</table>

**D Ethical, Social and Professional Understanding**

| D1. | Demonstrate 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. | 5 |
| D2. | Appreciate the importance of sustainability and the impact of science within the broader economic, environmental and socio-cultural context. |  |

**E Personal and Intellectual Autonomy**

| E1. | Evaluate personal performance and development, recognise gaps in knowledge and acquire new knowledge independently. | 3, 4 |
| E2. | Demonstrate flexibility in adapting to new situations and dealing with uncertainty. | 4 |
| E5. | Demonstrate openness and curiosity when applying scientific understanding in a wider context. |  |

**3 Study Commitment**

Students enrolled in any 3-credit point unit of study offered by the Faculty of Science should consider spending up to 6 hours per week on that unit during the 13 teaching weeks and the 2 study vacation weeks. In COSC 1001/1901 this involves:

**Lectures**

11 one-hour lectures. Lectures will include computer simulations and demonstrations, and class discussions. Lecture notes are provided.

**Laboratory Work**

11 two-hour practical sessions in a computational science laboratory, based on and supporting the lecture modules. You work in pairs at a computer on a selection of qualitative and quantitative questions and problems. Practical notes with problems will be provided, and tutors are present to assist you.

**Independent Study**

You are expected to do up to 3 hours (per week) of independent study. Use this time to:

- read through and understand your notes and relevant sections of the recommended references
- complete the assignments
- study for written and practical exams
### In class activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures (11 @ 1 hr each)</td>
<td>11</td>
</tr>
<tr>
<td>Laboratory sessions (11 @ 2 hrs each)</td>
<td>22</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

### Independent Study

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading of text for lectures (11 @ 0.5 hr each)</td>
<td>5.5</td>
</tr>
<tr>
<td>Reading of lecture notes after lectures (11 @ 0.5 hr each)</td>
<td>5.5</td>
</tr>
<tr>
<td>Revision and self assessment (11 @ 1 hr each)</td>
<td>11</td>
</tr>
<tr>
<td>Assignments (1 @ 3 hr each)</td>
<td>3</td>
</tr>
<tr>
<td>Preparation for practicals (11 @ 0.5 hr each)</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
</tr>
</tbody>
</table>

### Study Tips

If you attend classes regularly and involve yourself in all of these learning experiences, you will gain a good understanding of the course work. This will have a considerable impact on your exam preparation and performance.

This is an introductory course and no prior programming knowledge is assumed. Mathematical techniques such as algebra and basic calculus will be used during the course, and hence HSC Mathematics is assumed knowledge. If you are experiencing difficulties with mathematics during the unit please inform your lecturer and seek assistance from the Mathematics Learning Centre in the Carslaw building.

**Good study habits** are also very important - we offer some suggestions on our Learning Physics web page ([http://sydney.edu.au/science/physics/current/learningphysics.shtml](http://sydney.edu.au/science/physics/current/learningphysics.shtml)).

### 4 Learning and Teaching Activities

#### Class Timetabling

**Lectures and Practicals**

There is a single lecture stream for all students in COSC1001/1901. There will be two streams of the practical sessions, and you will be scheduled into one of these, based on which stream you attend in the first week.

<table>
<thead>
<tr>
<th>Session</th>
<th>Location</th>
<th>Times</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>Physics Lecture Theatre 1</td>
<td>Friday 12pm</td>
<td>Friday 3 August</td>
<td>Friday 19 October</td>
</tr>
<tr>
<td>Practical Class 1</td>
<td>Carslaw 177, Computational Science Lab</td>
<td>Tuesday 9-11am</td>
<td>Tuesday 7 August</td>
<td>Tuesday 23 October</td>
</tr>
<tr>
<td>Practical Class 2</td>
<td>Carslaw 177, Computational Science Lab</td>
<td>Tuesday 3-5pm</td>
<td>Tuesday 7 August</td>
<td>Tuesday 23 October</td>
</tr>
</tbody>
</table>

There are no classes over the mid-semester break (Monday 24 September to Monday 1 October inclusive).
LECTURE OUTLINE

The unit is organised according to the material covered in each week’s lecture. After attending the lecture and the practical sessions the student should be able to complete the specific objectives detailed below.

SECTION 1: INTRODUCTION TO MATLAB

Scientific Problems – Distance to the horizon. Model of the atmosphere. Geostationary Orbits.

Lecture 2: Flow Control – Write simple m-files. Looping constructs (for/while) and conditional execution (if/else).
Scientific Problems – Simple Number Theory, Snell’s Law for a lifeguard, Optimising a parabolic trajectory.

Scientific Problems – Wave Propagation (reflection, superposition, standing-waves)

Lecture 4: Eliminating Loops – Working with matrices and the logical data type. Using the find command. Be able to solve array problems without looping constructs.
Scientific Problems – Number Theory. Image analysis and manipulation. Cryptography scheme

SECTION II: SIMULATING RANDOM PROCESSES

Scientific Problems – Computing p. Tossing a coin. Rolling a dice. Random Walk (Brownian Motion)

Lecture 6: The Normal Distribution – Generating normally-distributed random numbers. Convergence of other distributions to the normal distribution.
Scientific Problems – Height distributions in a population. Exam scaling.

Lecture 7: The Exponential Distribution – Derivation of a distribution not present in MATLAB. Relationship to the Poisson Distribution.

SECTION III: LINEAR ALGEBRA

Lecture 8: Linear Algebra – Understand methods of solution of simultaneous linear equations and be able to apply the methods to a variety of scientific problems. Appreciate the numerical difficulties of working with linear systems in certain cases.
Scientific Problems – Fitting a parabola with a matrix. Temperature distribution on a plate.

Lectures 9-10: Eigen values – Compute and interpret the eigenvectors and eigenvalues of a matrix.

SPECIFIC OBJECTIVES
The following outline for the semester lists specific objectives that define what you should learn and understand. Understanding a term or concept means that you should be able to:

- explain its meaning in writing and give examples;
- interpret it correctly when you read or hear it;
- use it correctly in your writing; and
- apply it correctly to examples and problems.

The outline also briefly describes the kind of science problems you will encounter, although mathematical and scientific applications will be highlighted throughout the course.

Lecture & Practical Session: 1
Specific objectives – after this session you should be able to:

- Be able to launch MATLAB, enter commands and use the HELP facility
- Understand the scalar datatypes and numerical representation
- Understand the vector datatype
- Write MATLAB commands using scalars and vectors, and make 2-d data plots

Lecture & Practical Session: 2
Specific objectives – after this session you should be able to:

- Write MATLAB program (.m) files
- Understand looping (for and while loops)
- Employ loops to calculate values (i.e. factorials)
- Use flow control to make decisions and terminate loops

Lecture & Practical Session: 3
Specific objectives – after this session you should be able to:

- Write user-defined functions
- Use dynamic memory allocation
- Employ these concepts to ease and extend programming

Lecture & Practical Session: 4
Specific objectives – after this session you should be able to:

- Simplify loops with in-built functions
- Understand and use logical operations
- Understand and the matrix datatype
- Understand and use the string datatype

Lecture & Practical Session: 5
Specific objectives – after this session you should be able to:

- Generate a sequence and a matrix of random numbers
- Simulate random processes (e.g. tossing a coin)
- Present results as histograms
- Use built-in functions to analyse graphical output

Lecture & Practical Session: 6
Specific objectives – after this session you should be able to:

- Understand the generation of non-uniform random numbers
- Generate a normal distribution from uniform deviates
- Generate populations of values drawn from a normal distribution
- Derive statistical properties from population samples

Lecture & Practical Session: 7

Specific objectives – after this session you should be able to:

- Generate samples drawn from general probability distributions
- Understand the properties of the exponential distribution
- Apply the exponential distribution to physical processes (e.g. radioactivity)
- Calculate the accuracy of statistics drawn from limited populations

Lecture & Practical Session: 8

Specific objectives – after this session you should be able to:

- Review the application of linear algebra to physical problems
- Understand the graphical meaning of solutions to linearly coupled equations
- Understand the built-in matrix manipulation functions
- Apply matrix methods to problems in linear algebra and apply to physical situations

Lecture & Practical Session: 9

Specific objectives – after this session you should be able to:

- Review eigen equations and their application to physical problems
- Understand the built-in functions to examine eigen equations
- Use built-in functions to determine eigen values and eigen vectors
- Interpret computational output for physical problems

Lecture & Practical Session: 10

Specific objectives – after this session you should be able to:

- Review oscillating systems and their relation to linear algebra systems
- Setup coupled oscillators and establish their matrix representation
- Solve the resulting eigen equations
- Graphical display dynamical oscillations

5 Teaching Staff and Contact Details

<table>
<thead>
<tr>
<th>Unit Coordinator</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Pulin Gong</td>
<td><a href="mailto:p.gong@physics.usyd.edu.au">p.gong@physics.usyd.edu.au</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching Staff</th>
<th>Email</th>
<th>Room</th>
<th>Phone</th>
<th>Note</th>
</tr>
</thead>
</table>
6 Learning Resources

Textbook


This text provides a comprehensive introduction to MATLAB programming, and contains many questions for additional study. **This text is not required but is recommended** to students who have little experience in computer programming. The web-site for the course also includes links to several on-line guides to MATLAB.

Lecture and Practical Session Notes

Lecture notes will be provided.

Notes providing problems and guidance for the practical sessions will be provided at the start of each session. The notes will include a variety of scientific problems from a broad range of disciplines, illustrating the theory presented in the lectures. In the week following each laboratory session, worked solutions will be posted on the web-site for this course.

Web Resources


Email

The University provides you with email access based on your username. We may use this email address to provide you with important information regarding this unit of study. **We expect you to periodically read your email account or to forward mail from it to an account you do read (eg a hotmail account).**

Where to go for help

If you need help, you can:

- as a first step, always check your unit eLearning pages for information, documents and links
- ask other students using the Discussion Board on the unit eLearning page
- go to the Physics Student Services Office, Room 210 in the Physics building or phone 9351 3037
- ask your lecturer or tutor
- consult one of the many services provided by the University, such as the Maths Learning Centre. These can be found by choosing Junior Physics Resources and Links from the unit eLearning page or your MyUni pages ([http://sydney.edu.au/myuni](http://sydney.edu.au/myuni)).

7 Assessment Tasks
Assessment

Assessment tasks are intended to allow you to demonstrate what you have learned related to the goals of this unit. They also serve to encourage you to work with the material, but should not dominate your approach to learning. See them as another learning activity, accompanying and complementing those listed earlier.

Assessment of this unit of study is based on achievement of specific learning objectives (listed earlier) demonstrated in a combination of assignments, tests, examination and laboratory work. Satisfactory performance in all aspects of assessment is necessary to ensure a pass in this unit.

In addition, students in physics must be able to express themselves accurately by clear, efficient use of the English language in their written work. Spelling, grammar, punctuation and correct use of language will be taken into account when written reports and examination work are assessed. Students should refer to the University’s WriteSite (http://writesite.elearn.usyd.edu.au/) if they are looking for guidance on grammar and other aspects of academic and professional writing.

You should be familiar with the new University Assessment policy, which can be found at http://sydney.edu.au/ab/policies/Assessment_Policy_2011.pdf

7.1 Summative Assessments

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Percentage Mark</th>
<th>Due Date</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly Practical Sessions</td>
<td>10</td>
<td>Weekly</td>
<td>1, 2, 4</td>
</tr>
<tr>
<td>Assignment</td>
<td>20</td>
<td>Week 11 Monday, 15 October 2012</td>
<td>1, 2, 3, 4, 5, 6, 8</td>
</tr>
<tr>
<td>Practical Exam</td>
<td>25</td>
<td>Week 13 (week starting Sunday, 28 October 2012)</td>
<td>1, 2, 4</td>
</tr>
<tr>
<td>Final Examination</td>
<td>45</td>
<td>Exam Period</td>
<td>1, 2, 3, 8</td>
</tr>
</tbody>
</table>

Descriptions of Summative Assessments

Weekly Practical Sessions
Assessment in the practical sessions is based on successful completion of a set of exercises, and upon a progressive test and practical exam. For each laboratory session, you are awarded marks based on your record of completion of the exercises in a logbook. You will only receive full marks for a practical session if all checkpoints have been achieved and marked off by the lab tutors. Students will not receive marks for exercises completed outside of the practical sessions.

Assignment
Unlike the practical sessions, the progress test must be taken individually. This test will be comprised of several questions similar to those in the practical sessions. You will need to be able to write and run MATLAB programs to successfully complete this test.

Practical Exam
The assignment will consist of several questions and are designed to help you develop problem-solving skills and obtain some progressive feedback. The benefit to you from doing the assignments is therefore much more important than the marks per se. Worked solutions will be posted on eLearning when the marked assignments are returned. You may submit the assignments by yourself or together with your partner from the practical sessions. If you submit as a pair, please add a cover sheet (available from
Physics Student Services, Room 210) signed by your partner and you, indicating that you have made a significant contribution to the work submitted. We will NOT accept assignments that are simply copied. Copying the work of another person without acknowledgment is plagiarism and contrary to University policies on Academic Honesty in Coursework (see http://sydney.edu.au/policies/showdoc.aspx?recnum=PDOC2012/254&RendNum=0).

Final Examination
Unlike the practical sessions, the practical exam must be taken individually. This exam will be comprised of several questions similar to those in the practical sessions. You will need to be able to write and run MATLAB programs to successfully complete this exam.

7.2 Assessment Grading

Final grades in this unit are awarded at levels of HD (High Distinction), D (Distinction), CR (Credit), P (Pass) and F (Fail) as defined by Academic Board Resolutions: Assessment and Examination of Coursework (see http://www.usyd.edu.au/ab/policies/Assess_Exam_Coursework.pdf). Distributions of grades in units offered by Schools in the Faculty of Science are governed by a policy based on 'norm-referencing' that defines the proportions of each grade awarded among student who pass. For Junior units of study, acceptable ranges of grades are:

<table>
<thead>
<tr>
<th>Merit Grades</th>
<th>%HD</th>
<th>%HD + D</th>
<th>%HD + D + CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior</td>
<td>3%</td>
<td>14%</td>
<td>42%</td>
</tr>
</tbody>
</table>

The final mark for each unit is calculated by adding all the individual assessment marks with the appropriate weightings and then scaling to match University guidelines. This final scaling isn't normally very great, but it does mean that you can't simply add all your individual marks and get your final mark. The result of all this is a higher percentage of HDs and Ds in the Advanced unit (as you might expect), however the scaling also ensures there are HDs and Ds awarded in the other units of study.

8 Learning and Teaching Policies

Academic Dishonesty/Plagiarism

We will NOT accept assessments that are simply copied. Copying the work of another person without acknowledgment is plagiarism and contrary to University policies on Academic Dishonesty and Plagiarism http://sydney.edu.au/policies/showdoc.aspx?recnum=PDOC2012/254&RendNum=0

Academic Dishonesty means seeking to obtain or obtaining academic advantage (for example, in assessments) by dishonest or unfair means or knowingly assisting another student to do so. Academic Dishonesty includes, but is not limited to:

(a) recycling – that is, the resubmission for assessment of work that is the same, or substantially the same, as Work previously submitted for assessment in the same or in a different unit of study (except in the case of legitimate resubmission with the approval of the examiner for purposes of improvement);

(b) fabrication of data;

(c) the engagement of another person to complete or contribute to an assessment or examination in place of the student, whether for payment or otherwise or accepting such an engagement from another student;

(d) communication, whether by speaking or some other means, to other candidates during an examination;

(e) bringing into an examination forbidden material such as textbooks, notes, calculators or computers;
(f) attempting to read other student’s work during an examination;

(g) writing an examination or test paper, or consulting with another person about the examination or test, outside the confines of the examination room without permission;

(h) copying from other students during examinations;

(i) Inappropriate use of electronic devices to access information during examinations.

**Plagiarism** means presenting another person’s work as one’s own work by presenting, copying or reproducing it without acknowledgement of the source. Plagiarism is a form of Academic Dishonesty, but is treated separately. Plagiarism includes presenting work for assessment, publication, or otherwise, that includes:

(a) phrases, clauses, sentences, paragraphs or longer extracts from published or unpublished work (including from the Internet) without acknowledgement of the source; or

(b) the work of another person, without acknowledgement of the source and presented in a way that exceeds the boundaries of legitimate cooperation.

**Consideration of factors affecting your study**

If your academic performance in a Science Faculty unit of study is adversely affected by **illness or some other serious event**, such as an accident, you should notify the **Faculty of Science Student Office** (level 2 of the Carslaw building) within 7 days after the period for which consideration is sought, by completing an Application for **Special Consideration** with accompanying documentation. This is especially important if you miss an examination.

If you have another reason for the Science Faculty to take account of your circumstances - religious commitments, legal commitments (e.g. Jury duty), elite sporting or cultural commitments (representing the University, state or country), or Australian Defence Force commitments (e.g. Army Reserve) - you should notify the **Faculty of Science Student Information Office** (level 2 of the Carslaw building) at least 7 days BEFORE the period for which consideration is sought, by completing an Application for **Special Arrangements** with accompanying documentation.

These two forms of Consideration should cover most allowable circumstances. However, if you have another reason for requiring the School of Physics to take account of your circumstances, you should notify the **School of Physics Student Services Office** immediately.

You should **not** submit an application of any type if:

- there is no assessment associated with a missed class, or
- you have a reasonable opportunity to make up any work you missed.

If, for example, you miss an assignment, an application for appropriate Consideration is required to allow late submission, but we do expect the assignment to be submitted. Sometimes catching up may be impossible, in which case we will consider a pro-rata adjustment of your marks on the basis of an application for Consideration.

**Special Consideration or Special Arrangements**

To submit an application for **Special Consideration** or **Special Arrangements** you should:

1. Obtain the appropriate Application pack from the Student Information Office of the Faculty of Science, the Faculty website at [http://sydney.edu.au/cstudent/ug/forms.shtml](http://sydney.edu.au/cstudent/ug/forms.shtml), or the Physics Student Services Office.
2. Complete the forms and obtain whatever original documentary evidence is appropriate. Note especially that the Professional Practitioner’s Certificate is essential for Special Consideration on grounds of serious illness - Medical Certificates will NOT be accepted.

3. Take the original copy of all forms and documents, plus sufficient copies for each unit of study affected and yourself, to the Faculty of Science Student Information Office (NOT any other Faculty Office if you are seeking Consideration in a unit taught by Physics). They will sign/stamp both the original application form and the copies. In the case of Physics units, one copy of the documentation must then be submitted to the Physics Student Services Office. Keep one copy yourself. A formal decision on your application will be sent to your university email address within 14 days.

Students unsure what type of Consideration is appropriate, or unhappy with a Consideration decision, should consult the Physics Student Services Office.

Further details on University policy regarding Considerations can be found in the Academic Board Assessment Policy at http://sydney.edu.au/ab/policies/Assessment_Policy_2011.pdf. This document also contains details on other aspects such as Student Appeals against academic decisions.

For full details of applicable university policies and procedures, see the Policy web site at sydney.edu.au/policy.

Relevant forms are available on the Faculty Forms and Procedures web site at sydney.edu.au/science/cstudent/ug/forms.shtml