Information Sheet for MATH1014 Introduction to Linear Algebra

Web Site
It is important that you check the Junior Mathematics web site regularly. It may be found through WebCT, or by following links from the University of Sydney front page, or by going directly to


Important announcements relating to Junior Mathematics are posted on the site, and there is a link to the MATH1014 page. Material available from the MATH1014 page may include information sheets, the Junior Mathematics Handbook, notes, exercise sheets and solutions, and previous examination papers.

Lectures
There are 2 different lecture streams. You should attend one stream (that is, two lectures per week), as shown on your personal timetable.

<table>
<thead>
<tr>
<th>Times</th>
<th>Location</th>
<th>Lecturer</th>
<th>Consultation</th>
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<tbody>
<tr>
<td>8 am Mon &amp; Tue</td>
<td>Carslaw 159</td>
<td>Dr N. O’Brien, Carslaw room 714</td>
<td>Mon, 1-2pm</td>
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<tr>
<td>11 am Mon &amp; Tue</td>
<td>Carslaw 159</td>
<td>Dr L. Paunescu, Carslaw room 816</td>
<td>Tues, 1-2pm</td>
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Lectures run for 13 weeks. The last lecture will therefore be on Tuesday 24 October.

Text book
Linear Algebra (A Modern Introduction), by David Poole.
Available from the Co-op Bookshop.

Tutorials
Tutorials (one per week) start in week 1. You should attend the tutorial at the time given on your personal timetable. Attendance at tutorials will be recorded. Your attendance will not be recorded unless you attend the tutorial in which you are enrolled. Tutorials will be based on exercises from the textbook. It would therefore be a good idea to take your textbook to the tutorial with you each week.

Problems will be assigned in advance so that students will have an opportunity to work on them themselves before they are discussed in the tutorial. Check the website each week to find which problems have been assigned for the following week’s tutorial.

Solutions to tutorial exercises for week $n$ will usually be posted on the web by the afternoon of the Friday of week $n$. 
Assessment
Your final raw mark for this unit will be calculated as follows:

- 70%: Exam at end of semester 2.
- 10%: Assignment mark.
- 20%: Quiz mark.

Your final raw mark is then scaled to produce your final mark. Marks are scaled so that the distribution of grades is consistent with the quality of the class, and the difficulty of the unit, as required by the University.

Examination
There is one examination of 1.5 hours’ duration during the examination period at the end of semester 2. Further information about the exam will be made available at a later date.

Quizzes
There are two quizzes, each worth 10% of your final raw mark. Quizzes are held during tutorials, in

week 4 (beginning 14 August) and week 9 (beginning 18 September).

You should put those dates in your diary now! You must sit for the quiz during the tutorial in which you are enrolled. Your quiz mark will not be recorded if you sit for the quiz in a tutorial in which you are not enrolled (unless you have made an arrangement with the Student Office). If you miss a quiz, then you must go to the Student Office as soon as possible afterwards.

Assignments
Two assignments will be collected and marked. Each assignment is worth 5% of your final raw mark. Assignments will be due on Thursday 7 September and Thursday 12 October.
Marked assignments will be returned to the pigeonholes on Carslaw Level 3.

Where to go for help
For administrative matters, go to the Mathematics Student Office, Carslaw room 520.
For help with mathematics, see your lecturer, or your tutor. Lecturers guarantee to be available during their indicated office hour, but may well be available at other times as well.
If you are having difficulties with mathematics due to insufficient background, you should go to the Mathematics Learning Centre (Carslaw room 441).
## Week-by-week outline

<table>
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<tr>
<th>Week</th>
<th>Topics</th>
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<tbody>
<tr>
<td>1</td>
<td>Geometry and algebra of vectors; length and angle (dot product)</td>
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<tr>
<td>2</td>
<td>Lines and planes</td>
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<tr>
<td>3</td>
<td>Code vectors and modular arithmetic</td>
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<tr>
<td>4</td>
<td>Systems of linear equations; Gaussian elimination</td>
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<td>5</td>
<td>Gauss-Jordan Elimination; resource allocation, network analysis</td>
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<tr>
<td>6</td>
<td>Matrix operations</td>
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<tr>
<td>7</td>
<td>Matrix algebra</td>
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<tr>
<td>8</td>
<td>The inverse of a matrix</td>
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<tr>
<td>9</td>
<td>Leslie population models; adjacency matrices; Markov chains</td>
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<tr>
<td>10</td>
<td>Eigenvalues and eigenvectors</td>
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<tr>
<td>11</td>
<td>Determinants</td>
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<tr>
<td>12</td>
<td>Applications of eigenvalues and eigenvectors</td>
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<tr>
<td>13</td>
<td>Revision</td>
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