**Section 2 - Connect with your University**



**Reading List – Computer Science**

In order to prepare for a Computer Science degree, there are a number of areas where you should direct your efforts.

Note – if you are reading this guidance and have *not* studied A Level Computer Science, do not panic. Many Computer Science undergraduates have not previously studied either GCSE or A Level Computer Science, and will therefore have limited or no programming experience. If this applies to you, then focus on text or links that are marked with an asterisk. The best online resource for non-programmers is [www.w3schools.com](http://www.w3schools.com) – an excellent resource which serves as a very good introduction to many different languages.

**Programming**

Identify the main programming languages used in your university course. There will be more than one language used throughout the course, so focus on the languages that you are least familiar with. If you are unsure, focus on Java, HTML, CSS and JavaScript.

Java

*Websites*

<https://www.w3schools.com/java/>\*

<https://docs.oracle.com/javase/tutorial/>

*Book*

Sams Teach Yourself Java in 24 Hours - <https://www.amazon.co.uk/Sams-Teach-Yourself-Java-Hours/dp/0672330768>\*

HTML/CSS/JavaScript

*Websites*

<https://www.w3schools.com/html/default.asp>\*

<https://www.w3schools.com/css/default.asp>\*

<https://www.w3schools.com/js/default.asp>\*

*Book*

HTML and CSS: Design and Build Websites - [https://www.amazon.co.uk/HTML-CSS-Design-Build-Websites/dp/1118008189/ref=sr\_1\_4?dchild=1&keywords=html&qid=1587581017&s=books&sr=1-4](https://www.amazon.co.uk/HTML-CSS-Design-Build-Websites/dp/1118008189/ref%3Dsr_1_4?dchild=1&keywords=html&qid=1587581017&s=books&sr=1-4)

SQL

*Website*

<https://www.w3schools.com/sql/default.asp>\*

**Mathematics**

Many Computer Science students are surprised by the significant mathematical content in their course. If your programming ability is sound, your time may be better spent ensuring that you are aware of the mathematical content and suggested reading/set books. If these books are available online, you would benefit from reading the initial chapters to prepare you for the level of challenge that this will present. An example is listed here from the University of Bristol BSc Computer Science.

*Books*

Lehman, Eric et al, Mathematics for Computer Science – free PDF available online from MIT.\*

Rosen, Kenneth, Discrete Mathematics and Applications (McGraw-Hill, 2019) ISBN: 978-1259676512

**Theory and other topic area**

You should keep up to date and read articles on technology breakthroughs. These are available on good news websites (such as BBC News Technology) and magazines such as New Scientist.

Big Data and Data Mining – this is an important area of Computer Science, where the continually increasing amount of different data is available for analysis, but that analysis requires new and specialist techniques and programming methods. To enhance your awareness of this topic area, look at the following websites:

* <https://r4ds.had.co.nz/index.html> (online version of book ‘R for Data Science’)
* <https://www.kaggle.com/c/titanic>