Academic Preparations for Data Science Strand

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All students admitted to the MSc in Computer Science should have achieved a II.1 grade in their undergraduate degree in Computing or a closely related discipline. We recognise that students will nevertheless have very different backgrounds and some will be over-prepared in some areas and under-prepared in others.

We set out below some of the background knowledge that teaching staff will assume you will have and some links to preparatory material you can look at if you are weak in any particular area.

- **Basics of Machine Learning**: it is assumed that students will have some taken some courses related to basics of machine learning at undergraduate level. If not the following course (or something with an equivalent syllabus) should be considered, before joining:
  https://courses.edx.org/courses/course-v1:ColumbiaX+DS102X+2T2019/da9210ccbfe64e25844274ba94f0906e/
- **Knowledge of the 'R' programming language**: R is used in several of the mandatory modules on this strand.
  http://www.r-tutor.com/elementary-statistics
- **Basic probability and statistics**: students in some previous years who did not have prior exposure to basic probability and statistics struggled with this course – We highly recommend that, if you are in this category, that you undertake some preliminary study, such as in the below courses (or equivalent syllabus)
  o Probability: https://www.edx.org/course/introduction-probability-science-mitx-6-041x-2
  o Introductory statistics: https://www.edx.org/course/statistical-thinking-data-science-columbiax-ds101x-1
- **Computer Science topics:** Note that the course is a specialization in computer science, so some previous experience is assumed, including in the following modules that are mandatory for the Data Science strand:
  o Scalable Computing: basic knowledge of Linux – file structures. Command line interface. IP addressing, use of SSH
  o Security & Privacy: simple programming in C, socket programming
- In addition, students take a small number of **elective topics** from a pool of modules available to all MSc students. Please review the module details to ensure you have the pre-requisites for taking a particular elective.

  More details on all modules (mandatory or elective) are available at:
  https://teaching.scss.tcd.ie/m-sc-computer-science-data-science/

- **English Language Skills**: The language of instruction and communication, on this programme is English. All students on the course are required to write and present in English, and will, by the end of the course, be required to produce works of a publishable quality.

  If your undergraduate education has not been wholly in the English language, it is highly recommended that you consider taking one of the English for Academic Practice (EAP) courses offered in TCD. See: https://www.tcd.ie/slscs/english/trinity_in-sessional_programme/in-sessional_eap/index.php