

DPT updates for 2020-21

Summary and justification

This paper proposes five sets of updates:

1. (p1) A minor housekeeping update to the notes for outside courses.
2. (p2-3) Year 2 of all UG degrees, to account for ongoing curriculum changes (in particular, three new UG2 courses that will launch in 2020-21). The number of compulsory credits for each degree doesn't change except where noted, but specific courses must change.
3. (p4) Year 3 of all UG degrees, to change obsolete wording in the notes about Level 9 vs Level 10 courses and to increase the number of permitted outside credits from 10 to 20 (because 10 credit courses at levels 9-10 are now rare across the University).
4. (p5) Years 3-4 of the CS+Maths UG degree. When the AI+Maths degree was discontinued a couple of years ago, it was agreed that CS+Maths should be broadened to allow choices that would have only been possible on AI+Maths. This document proposes specific changes to implement that.
5. (p6-7) Years 3-4 of the Cognitive Science UG degree, so that Informatics course choices are more focussed on those relevant to the degree.

Updates to years 3-4 of the Data Science Graduate Apprenticeship are proposed in a separate paper.

Course abbreviations used in the remainder

In the DPTs below, courses from other Schools are listed with full names, and the following abbreviations are used for Informatics courses.

- **DMP:** Discrete Mathematics and Probability (replaces DMMR from 2020-21)
- **Inf2-FDS:** Informatics 2 - Foundations of Data Science (new in 2020-21)
- **Inf2-SEPP:** Informatics 2 - Software Engineering and Professional Practice (new in 2020-21) [OR the 'backup plan' course which may instead be called just Inf2-SE.]
- **Inf2-IADS:** Informatics 2 - Introduction to Algorithms and Data Structures (new in 2019-20)
- **Inf2C-CS:** Informatics 2C - Computer Systems (expanded as of 2019-20)
- **Inf2D:** Informatics 2D - Reasoning and Agents

Degrees that do not require updates to year 2

Six of our UG degrees stopped accepting new entrants 2-4 years ago, so won't need a Year 2 next year. These are: AI+Maths, AI+SE, AI with Mgmt, CS+Electronics, CS with Mgmt, SE with Mgmt.

A housekeeping update for outside course collections, yrs1-5+Msc

Our DPTs all include some options for outside courses, listed as "Level *N* courses in Schedules A to Q, T and W" (where *N* is "7 and 8", "9 and 10", "10 and 11", or "11", depending on the year). All of these currently have a note that starts with:

These are courses in all schools other than Medicine or Veterinary Studies.

It turns out there is now a Centre for Open Learning (new schedule X). The DPT correctly precludes students taking these courses, but the notes should be updated to start with:

These are courses in all schools other than Medicine, Veterinary Studies, or the Centre for Open Learning.

Year 2 updates, by degree

Artificial Intelligence

100 credits of compulsory courses:

Semester 1	Semester 2
Inf2-FDS (20)	
Inf2-IADS (20)	
DMP (20)	Inf2-SEPP (20)
	Inf2D (20)

In addition, 20 credits of option courses.

Computer Science (BEng/BSc), Software Engineering

100 credits of compulsory courses:

Semester 1	Semester 2
Inf2-FDS (20)	
Inf2-IADS (20)	
DMP (20)	Inf2-SEPP (20)
Inf2C-CS (20)	

In addition, 20 credits of option courses.

Artificial Intelligence and Computer Science, MInf

120 credits of compulsory courses:

Semester 1	Semester 2
Inf2-FDS (20)	
Inf2-IADS (20)	
DMP (20)	Inf2-SEPP (20)
Inf2C-CS (20)	Inf2D (20)

Computer Science and Management Science

In 2018/19, these students took Inf2A, Inf2B, DMMR, PwA, Business Analytics and Informatics Systems, and 20 additional credits from the choice of Business courses.

Proposed update:

80 credits of compulsory courses (reduced from 100 compulsory credits in 18/19):

Semester 1	Semester 2
Inf2-FDS (20)	
Inf2-IADS (20)	
DMP (20)	Business Analytics and Informatics Systems (20)

In addition,

- 20 credits from Business Studies Level 8 courses.
- 20 credits of option courses from any School.

Computer Science and Physics

In 2018/19, these students took Inf2B, Inf2C-CS, Inf2C-SE, Physics of Fields and Matter, Modern Physics, Linear Algebra and Several Variable Calculus, Dynamics and Vector Calculus, and 20 free credits.

Proposed update:

120 credits of compulsory courses (increased from 100 compulsory credits in 18/19):

Semester 1	Semester 2
Inf2-FDS (20)	
Inf2-IADS (20)	
Inf2C-CS (20)	Physics of Fields and Matter (20)
Modern Physics (10)	Dynamics and Vector Calculus (20)
Linear Algebra and Several Variable Calculus (10)	

120 compulsory credits is permitted on joint degrees. If we wanted to reduce it back to 100, we could remove Inf2-CS.

Data Science (Graduate Apprenticeship)

100 credits of compulsory courses:

Semester 1	Semester 2
Inf2-IADS (20)	
Inf2-FDS (20)	
Several Variable Calculus and Differential Equations (20)	Option – see below (20)
Probability (10)	Statistics (10)
Facets of Mathematics (10)	Computing and Numerics (10)

Course option: Fundamentals of Pure Mathematics (20) or Inf2D (20) or Inf2-SEPP (20).

(See also updates to year 3-4 of this degree, separate paper. The degrees similar to CS+Maths, but requires more constraints because of marketing to employers and constrained options in years 2-3.)

Computer Science and Mathematics, Cognitive Science

See below where all updates for years 2-4 for these degrees are given together.

Year 3 updates for all degrees

Update permitted outside credits from 10 to 20

At present our year 3 DPTs permit students to take up to 10 credits of outside courses ("Select between 0 and 10 credits from Level 9 and 10 courses in Schedules A to Q, T and W").

However, there are not many 10 credit courses left across the University at Level 9-10. I therefore propose to increase the number of permitted outside credits from 10 to 20 on all degrees.

Remove obsolete note about difficulty levels

All of our Year 3 DPTs include the following note:

"These lists include courses at level 9 (code format INFR09xxx) and level 10 (code INFR10xxx). In general, level 10 courses will contain more advanced material and be taught at a higher level than level 9 courses; you should take account of this when planning your course combination. Each entry links to a matching page in the University course catalogue, where you can find a description of the course content and information about any specific entry requirements."

This was true when most of our UG3-4 courses were 10 credits at either Level 9 or 10. But as a School we have been for several years intentionally shifting toward 20 credit Level 10 optional courses in years 3-4. There are very few Level 9 options left, all of them AI courses. So this note is at best obsolete and at worst may worry students who are unable to choose Level 9 courses.

I propose to replace this note with the following:

"Some third year courses are prerequisites for specific fourth year courses, and you are advised to consider your plans for fourth year when making your course choices."

Computer Science and Mathematics (Year 2-4 updates)

Changes to year 2

In **2018/19**, these students took Inf2A, Inf2B, Probability, Several Variable Calculus and Differential Equations, Fundamentals of Pure Mathematics, and 30 free credits.

Proposed update:

90 credits of compulsory courses:

Semester 1	Semester 2
Inf2-IADS (20)	
Inf2-FDS (20)	
Several Variable Calculus and Differential Equations (20)	Fundamentals of Pure Mathematics (20)
Probability (10)	

In addition, 30 credits of option courses from any School.

(Maths have 10 credit courses available in both S1 and S2. Probability is needed as background for S2 of FDS.)

Changes to year 3

Currently, Year 3 of CS and Maths is:

- 20-40 credits of: System Design Project and Informatics Large Practical
- 20-60 credits from Informatics 3rd year CS courses
- Optional: Professional Issues, Computer Security
- 40-80 credits from a collection of four Maths courses
- 0-40 credits from any other Level 9-10 Maths course
- 0-10 credits from any Level 9-10 course [will become 0-20 if preceding change is approved]

I propose to add following the highlighted bullet:

- 0-20 credits from Informatics 3rd year AI courses [this is equivalent to 'non-CS' courses]

Changes to year 4

Similarly, Year 4 of CS and Maths requires students to pick their Informatics courses from the collection of "Informatics 4th Year CS courses" (~45 courses). I propose to change this to "Informatics 4th Year courses" (~55 courses) in both places where it appears, i.e., to include both CS and AI courses.

Cognitive Science (Year 2-4 updates)

Changes to year 2

These students will have a minimum of 40 Informatics and 40 PPLS credits, as before. The old DPT was very complicated, with several options for maths, Informatics, and PPLS courses. We now have only one maths course in UG2, so this is now required. Most students will also take Inf2-FDS, but there is an option to do Research Methods and Statistics from Psychology instead.

Compulsory course:

- DMP (20, S1)

Cognitive Science (BSc Hons) – Data Science and Research Methods Courses [\[new collection\]](#)

Select exactly 20 credits from the following courses.

Note: Some honours Psychology courses require Research Methods and Statistics as a pre-requisite. Students planning to take these courses should register for RMS, other students should register for Foundations of Data Science.

- Inf2-FDS (20, YR)
- Research Methods and Statistics PPLS08001 (20, YR)

Schedule O - Cognitive Science - Level 8 Courses [\[existing collection, modify courses in it\]](#)

Select between 20 and 40 credits of the following courses.

Note: Students who register for Research Methods and Statistics are strongly recommended to register for both of these courses to ensure enough Informatics background to support honours Informatics study.

- Inf2D (20, S2)
- Inf2-IADS (20, YR)

Cognitive Science (BSc Hons) – Courses from PPLS - Level 8 [\[existing collection, modify courses in it\]](#)

Select between 40 and 60 credits of the following courses.

Note: Students planning to take honours Psychology courses should register for both Psychology 2A and Psychology 2B. Students planning to take honours Linguistics or Philosophy courses should check the prerequisites for those courses to guide their choice of year 2 courses.

- LEL2A: Linguistic Theory and the Structure of English LASC08017 20 credits
- LEL2B: Phonetic Analysis and Empirical Methods LASC08018 20 credits
- LEL2D: Cross-linguistic Variation: Limits and Theories LASC08020 20 credits
- Mind, Matter and Language PHIL08014 20 credits
- Knowledge and Reality PHIL08017 20 credits
- **[REMOVE from collection]: Research Methods and Statistics PPLS08001**
- **[ADD to collection]: Psychology 2A PSYL08011 20 credits**
- **[ADD to collection]: Psychology 2B PSYL08012 20 credits**

Level 7 and 8 courses in Schedules A to Q, T and W

Select between 0 and 20 credits from Level 7 and 8 courses in Schedules A to Q, T and W

Notes: These are courses in all schools other than Medicine or Veterinary Studies

Changes to year 3

Currently, Year 3 of Cognitive Science is:

- 30 compulsory credits: Computational Cognitive Science and Informatics Large Practical
- 10-50 credits from any Informatics 3rd year course
- Optional: Professional Issues
- 40-80 credits from any 3rd year PPLS course
- 0-10 credits from any Level 9-10 course [will become 0-20 if preceding change is approved]

I propose to amend the highlighted bullet, to replace with:

- 20-50 credits from Informatics 3rd year AI courses
- 0-20 credits from Informatics 3rd year non-AI courses

This will better highlight for students which courses are most relevant, while still permitting some flexibility to take less relevant Informatics courses that interest them.

(The collections of AI and non-AI courses are already defined by the AI degree.)

Changes to year 4

Similarly, Year 4 of Cognitive Science permits students to pick their Informatics courses from the collection of “Informatics 4th Year courses” (~55 courses). The current DPT is as follows:

EITHER

- 40 credit Informatics Honours Project
- 20-40 credits of Informatics 4th year courses
- 40-60 credits of Level 10 PPLS courses
- 0-10 credits of any Level 10-11 course

OR

- 40 credit PPLS Honours Project
- 20-40 credits of Level 10 PPLS courses
- 40-60 credits of Informatics 4th year courses
- 0-10 credits of any Level 10-11 course

I propose to change the highlighted parts to choose from “Informatics 4th year AI courses” (~20 courses), and add in both cases:

- 0-20 credits of Informatics 4th year non-AI courses

(Again, the collections of AI and non-AI courses are already defined by the AI degree.)