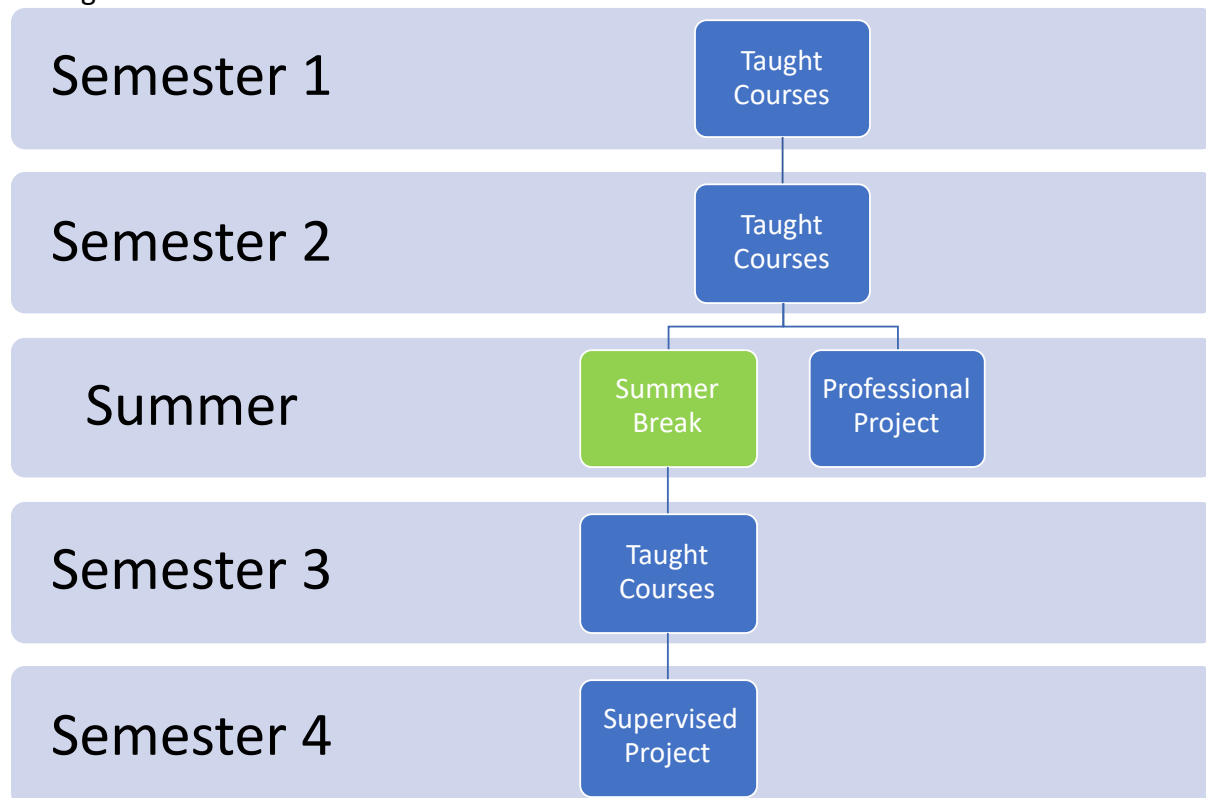# Outline Proposal for a new programme MSc in Advanced Artificial Intelligence

Some of our current MSc programmes are oversubscribed, and we have difficulties in controlling the size of the MSc cohort. This has consequent pressures on "high demand" courses. We also have difficulties in ensuring our students are well prepared for our more advanced MSc courses. Our MSc students find our current programmes stressful and exhausting because they are required to work for a full year. Many of them are at close to full stretch for this time and find themselves worn out by the time they come to do their dissertation work. This is a proposal to tackle some of these issues.

Outline

The overall structure of an MSc in Advanced Artificial Intelligence comprises 240 credits arranged as follows:

Semester 1	Taught Courses
Semester 2	Taught Courses
Summer	Summer Break · Professional Project
Semester 3	Taught Courses
Semester 4	Supervised Project

Each of the blue blobs represents a 60-credit block of work which is subdivided into courses or project work. The main features of the proposal are:

- The courses in semesters 1 and 2 could be taught face-to-face but the proposal is to launch this course as a "hybrid" online/campus programme where only semesters 3 and 4 of the programme are taught face-to-face. This would involve a significant effort to prepare high quality materials for semester 1 and 2 courses and the development of the capacity to deliver these courses effectively to large classes. Other Schools in the University (notably Mathematics) have the skills and experience to do this and we could potentially partner with them in creating these courses.

- After the first 120 credits of courses we would run a progression board to determine the progression decisions. Students failing to meet our progression conditions for the Advanced course would exit the programme with a PG Certificate or diploma. Students meeting the progression criterion would be permitted a choice to progress to take a Professional Project over the summer period or progress to the second year of study having a break over the summer vacation. An appropriate choice of progression criteria would give the School strong and direct control over face-to-face numbers entering the second year of study.
- In the first year of study we would envisage the standard PG Cert and PG Dip exit routes on the same basis as we currently award these qualifications.
- We envisage that for many the first year would be undertaken part-time over two years.
- The Professional Project would also be carried out online and would either be a large "cluster" project or a workplace-based project co-supervised with a work-based supervisor. In order to accommodate the progression board, we would not envisage students starting the professional project until late June. Submission of the project would be in September or October.
- In semester 3 students would take more advanced courses and would prepare their project proposals. Decisions on projects could be taken in roughly the same time sequence as UG4/5 proposals (i.e. project choice in Semester 2).
- The semester 4 project could have an extended deadline to allow more time for the MSc project.
- Depending on the range of choice available online in Semester 1 and 2 variants on this arrangement to widen our intake criteria are possible. For example:
  - **Pretty much the criteria we have at the moment**, some programming and some appropriate mathematics.
  - **Strong criteria on both Mathematics and Computer Science**, in this case if our more advanced courses were available online we could offer a 120 point dissertation done over two semesters for the most advanced students.
  - **Weaker criteria on either the Computer Science or Mathematics**, this would be possible if we had appropriate courses to allow students to catch up then we could recruit well- qualified students with some gaps in their knowledge.

Feasibility

- **Student numbers**: If we have capacity to take 250 face-to-face students in the second year, we might anticipate admitting 450 part-time students per year into the programme. This might reduce to 400 or so after the first year of part-time study and then 150 could be recommended to take the professional project route. So we would need capacity to handle around 850 online distance students spread over two years of study.
- **Fees (just considering international students for the moment)**: If the fees were set at £7500 for part-time study in the first year and £24000 for the face-to-face teaching in second year, then with the 450, 400, 150/250 numbers outlined above we would generate around £1m more fee income than we do at the moment. The fee of £24000 is our international UG fee at the moment. This assumes we have approx. 70% international students as we do at the moment.

- **For students**: the fee for an online masters would be £15000 and for the two-year MSc in Advanced XX the fees would be £39000. The pattern of study and the very significantly reduced time spent in Edinburgh mean the all-in costs for the 240-credit course are quite close to those for our 180 credit one-year course.

Implementation

This would involve a significant amount of work to get enough material to support the first-year programme. For example:

- Semester 1:
    - A 20-credit version of Intro to Object-Oriented Programming (already developed)
    - A course condensing the Machine Learning part of Inf 2B with Inf 2D to make a 20-credit course (we would need to develop).
    - IRR, 10-credits
    - Appropriate stats and probability courses 20-40 credits (Mathematics are already developing online Stats courses).
- Semester 2:
    - IAML
    - MLP folded into one semester
    - Data management course

Something like this would be a bare bones implementation.

Delivery

We would need to consider changes to administrative arrangements to allow us to deliver this. In particular we ned to consider how the ensure assessment is reliable. We would also need to consider the best way to develop the e-learning capabilities we need to do this.

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Stuart Anderson
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