Course Proposal Form

Please see Page 2 for instructions on which parts of this form to complete, whom to consult with to avoid unnecessary effort, and where to send the completed form.

Proposer(s): **Judy Robertson and Paul Patras** **Date: 13/2/19**

Cover page: Basic permanent course information

Unless otherwise noted, items in this section are entered into EUCLID and **cannot** be changed without creating an entirely new course.

Course Name	Computing in the Classroom
Course Acronym *(used by the School only, e.g., for the Sortable Course List)*	CiC
Course Level If the course is **only** available to MSc students, then it must be classed as Postgraduate. All other courses, regardless of level, are Undergraduate.	x Undergraduate __Postgraduate
Normal Year Taken	__UG1 __UG2 __UG3 _x_UG4 __UG5 __MSc
Also available in years *[This can be changed later if need be.]*	__UG1 __UG2 __UG3 __UG4 __UG5 __MSc
SCQF Credit Level Level 8 should normally be used for pre-honours courses. Level 10 should normally be used for optional UG3 courses (so UG4 students may also take them) and for courses aimed mainly at UG4 students. Level 11 should be used for courses aimed mainly at MSc students, whether or not UG4 students can also take them.	__7 __8 __9 _x_10 __11
SCQF Credit Points	__10 _x_20 __40 __60 __80 __Other:
Delivery Location	_x_Campus __On-line Distance Learning
Course Type	_x_Standard (default) __Dissertation __Online Distance Learning __Other (specify: Placement, Student Led Individually Created Course, Year Abroad)
Marking Scheme By default, courses use a numerical marking scheme. If you wish to use a grade-only marking scheme, your course proposal below should justify this.	_x_Standard (numerical) __Letter grade only

Guidance for remaining sections:

For an initial course proposal, please complete the **cover page and Section 1 (Case for Support)**, which asks you to describe the need for this course and to provide an overview of the course design, including the learning outcomes. **Please discuss your plans as early as possible with the head of Curriculum Review to avoid unnecessary effort.**

Send the form with these sections completed to the BoS Academic Secretary and head of Curriculum Review (listed on the BoS page) to obtain their comments before filling out the remainder of the form.

If a full proposal is invited, please complete the remaining sections and send to **iss-bos@inf.ed.ac.uk**.

2. Student-facing course description and additional feedback and assessment information.
This section provides most of the information students see in the DRPS entry for this course, as well as related details for BoS consideration.

3. Further information for BoS consideration: sample materials.

4. Additional Course Details required for DRPS. *[Administrative information such as delivery timing and prerequisites.]*

5. Placement in degree programme tables. *[Required for all level 9-11 courses; used to determine where the course will be added to existing degree programme tables.]*

6. Comments from colleagues. *[All course proposal should be sent to relevant colleagues in the area as well as to the appropriate year organizer and BoS Academic Secretary for comment in good time before the BoS meeting. Use this section to indicate what feedback has been solicited and received.]*

Colour coding and item-by-item guidance:

Guidance is provided in italics for each item. Please also refer to the guidance for new course proposals at http://www.inf.ed.ac.uk/student-services/committees/board-of-studies/course-proposal-guidelines. Examples of previous course proposal submissions are available on the past meetings page http://web.inf.ed.ac.uk/infweb/admin/committees/bos/meetings-directory but note that the proposal form was updated in Jan 2019.

Sections in gold are for student view and are required before a course can be entered into DRPS. You must complete these sections even if your course has already been approved based on other documentation.
Sections in orange are for School use but are still required for all courses (even those that have already been approved based on other documentation).
Section in gray are for consideration by the Board of Studies. They are normally required for all new course proposals but may be omitted in some circumstances (e.g., for invited course proposals) if you obtain permission in advance.

1. Case for support

This section is for consideration by the Board of Studies. The final two boxes (Learning Outcomes, Graduate Attributes) will also go into the student-facing course description.

Overall contribution to teaching portfolio and relation to existing curriculum

Please explain (a) what motivates the course proposal (e.g. a previous course having become outdated/inappropriate, an emergent or maturing research area or new research activity in the School, offerings of our competitors) and (b) how it relates to existing courses and degree programmes (including any prerequisite courses). Every new course should make an important contribution to the delivery of our Degree Programmes.

Computer science education in schools has always been important, but because of a shortage of computing teachers in secondary schools, there is a pressing need for pupils to have access to subject expertise. This course offers the opportunity for our students to make a real difference to the community (in line with the UoE strategy for *Edinburgh Local*) while gaining transferrable skills which will be an asset it the workplace.

The course does not have any prerequisites and is a useful complement to the existing suite of specialist courses. While we offer other courses which focus on cognition, they are not applied to an educational setting. HCI related courses typically focus on the development of software/UX rather than teaching materials per se, although there is clearly an overlap. Customer focussed communication skills are valuable in software engineering; this course develops a similar skill set with the teachers in the role of customers.

Target audience and expected demand

Describe the type of student the course would appeal to in terms of background, level of ability, and interests, and the expected class size for the course based on anticipated demand. A good justification would include some evidence, e.g. by referring to projects in an area, class sizes in similar courses, employer demand for the skills taught in the course, etc

The course targets UG4/MInf students who are interested in working with young people, and who may be considering a career in education.

The course is similar to fourth year optional courses taught in Glasgow, St Andrews, Dundee and Heriot-Watt Universities which share the purpose of improving computer science education in schools. Judy Robertson designed and taught the analogous course at Heriot-Watt University for four years. Experiences from this, and recent focus group research suggest that at least a subset of computer science students have a strong belief in the social value of computing education, and would personally like to contribute their skills and knowledge to help other young people. As a guide to student numbers, enrolments on the Heriot-Watt University course range from 10-15 students per year, and Dundee University currently has 30 students registered. In addition, Informatics dissertation projects which include education for children are popular with students who want to "give something back".

In the initial year, we propose to cap numbers at 16 students to pilot the arrangements with hosting students in schools. In future years we could scale up to 30 or more students, to meet the demand from schools. This course sits in the wider context of the Edinburgh and South East Scotland City Deal Region which aims to develop local talent in Informatics and Data Science. Judy Robertson leads on the project to deliver data education to all 527 schools in the region over the next eight years. This course will be an important strand in supporting class teachers, and inspiring young people to consider technology careers.

Anticipated Resource Requirements

Estimate how much lecturing, tutoring, exam preparation and marking effort will be needed in steady state, and any additional resources needed to set the course up initially. Provide estimates relative to class size where applicable and discuss how support staff will be recruited and supervised, if the class is likely to be very large. Please mention any scaling limits due to equipment or space. If equipment is required, say how it will be procured and maintained.]

A total of 6 lectures will be led by Judy Robertson. In addition, the course will require academic mentors for each student with whom they can discuss their progress in the school on a weekly basis. This can be done in small mentoring groups. We have recruited five members of staff for the first year (in addition to the course organisers) in conjunction with the School of Education.
The marking effort required will be of two reports and one presentation per student, and will be shared by the two course organisers.
Scaling is dependent on finding host schools. This will be achieved through the existing Teacher Education Partnership at the School of Education (which places student teachers in schools) and the Data Education in Schools program which has specific links with schools wishing to improve computer science and data science teaching.
Equipment such as educational robotics kit will be loaned to the students through the resources of the Informatics Programming Club and the School of Education equipment lending library for schools.

Quotas, special arrangements or unusual characteristics

Please specify if this course requires any special arrangements such as quotas or other registration arrangements; is a collaboration with another school or institution, or has other atypical characteristics that may affect finances or student registration. Further justification/information may be requested for such courses.

This course runs across two semesters to enable students to establish themselves in the school.

Students who apply to this course will be interviewed to determine their suitability for working in schools.

The course is intended to be run with support from the School of Education initially which is possible because of Judy Robertson's joint appointment.

Narrative description of the course aims and structure

Please describe the main goals of the course and how the course design will allow students to achieve those goals. This section should be consistent with the student-facing information provided below, but should provide additional information to help colleagues at BoS understand the vision and structure of the course. This description may refer to the learning outcomes and graduate attributes (next two boxes) and should explain how activities such as tutorials, labs, or in-lecture activities will support them, and how the proposed assessments will assess them.

For courses that are important pre-requisites for other courses, this section may also provide content/syllabus information which is too detailed for the student-facing description, such as a lecture-by-lecture syllabus.

This course will give fourth year students to opportunity to make a positive contribution to the local community by sharing the knowledge of Informatics with school pupils and teachers. They will work with teachers to design appropriate teaching material and practical projects for computing education in schools, communicate effectively with young people and instil in them passion for computing disciplines, and support them in developing skills necessary in an increasingly digital society. Students will gain a critical understanding of the theory and practice of computer science pedagogy as appropriate for different stages of school

learners. In addition, studying this course will enable students to develop a range of communication and organisational skills in a high pressure but supported real world setting. The course offers an in-depth, sustained experience in the classroom to students contemplating a career in education.

Students will be hosted by a primary or secondary school teacher in a school within Edinburgh, Fife, Borders, Midlothian, West Lothian or East Lothian (in order to leverage the existing connections within the Moray House School of Education Teaching Partnership). The student will spend four hours a week in the school, gradually moving from an observation role to that of a teaching assistant before teaching a class using materials which they have designed. They will be supported by their host teacher and by academic mentors from the School of Informatics and School of Education.

The aim of the course is for the students to design and deliver 1-2 classes/a project based on discussions with a classroom teacher, analysis of the appropriate school curricula, assessment of pupils' interests, and feedback received from an academic mentor. Students will receive formative feedback from an academic mentor based on observation notes and reflective writing recorded throughout the year.

Assessment:

Students will be formally assessed on two written reports and an oral presentation.

Report 1 ((to be submitted at the end of semester 1) (50%): A reflective account of their classroom experiences, how they relate to the educational theory and research papers they have read and plans for the teaching materials they will develop.

Report 2 (to be submitted at the end of semester 2) (30%): A summary of the teaching materials which they developed with an explanation of how the materials map to the curriculum and an evaluation of how effective the materials were from the points of view of both learners and teachers. The host teacher will be asked to write a short assessment to be included in this report and considered by the markers.

Oral Presentation (to be assessed at the end of semester 2) (20%): The student will prepare a presentation which reflects on their experiences of working in schools and the extent to which they achieved their personal learning goals during the course.

Delivery arrangements:

- There will be 3 formal lectures per semester delivered by Prof. Judy Robertson, and other colleagues at the Moray House School of Education. Topics include findings from recent computing education research, introduction to the classroom environment, the curriculum and policy context in Scotland, giving/receiving feedback, effective teaching techniques, and lesson planning.

- Students will spend 3h/week in schools, observing teachers during computing classes, and reflecting on the techniques used, best practices, pitfalls. These observation will be recorded in a private blog.

- Students will receive academic mentorship through one 1h tutorial/fortnight. Currently confirmed mentors: Bjoern Franke, Ram Ramamorthy, Peter Buneman, Paul Patras from the Schools of Informatics, and at least two members of staff from Moray House School of Education (Tom Lawson and Kate Farrell).

The course workload is aligned with the school recently agreed workload profile of 200 hours for a 20 credit course. Specifically the hours will be allocated as follows: 6h lectures; 22weeks x 3h class visits; 22 weeks x 1h individual reflection in learning log; 22 weeks x 2h individual study (e.g. class prep); 11 weeks x 1h mentor meeting; 20h writing report 1; 20h writing report 2; 1 day oral presentation preparation; 3 hour session attending oral presentations of classmates.

(Note that there is some flexibility in hours spent in the classroom as this will vary by timetabling constraints at the host school)

Summary of Intended Learning Outcomes (MAXIMUM OF 5)

List the learning outcomes of the course. These must be assessable (i.e., observable), so must specify what the student should be able to do concretely, not simply what they should "understand". Use concrete verbs that indicate (a) what type of assessment would be appropriate, and (b) what level of knowledge/thinking is expected (from recall to analysis to novel creation). ***Example verbs:*** *define, explain, implement, compare, justify. Assessments (described later) should be tied to the learning outcomes.*

Outcomes should typically focus more on the types of thinking/skills developed than on the detailed course content, and the level of thinking should be appropriate to the level of the course: outcomes for a Level 11 course should include more higher-level thinking skills than for a Level 8 course. Further guidance on writing learning outcomes can be found at https://www.ncl.ac.uk/ltds/assets/documents/res-writinglearningoutcomes.pdf

On completion of this course, the student will be able to

1. Critique key aspects of emerging research on computer science pedagogy, and analyse how these pedagogies may be applied to deliver topics either within Curriculum for Excellence or the relevant SQA qualifications.
2. Engage with the local community by helping to upskill primary and secondary school teachers about up to date topics in Informatics.
3. Design and develop effective teaching material, methodologies, and practical projects for computing modules taught in schools based on a synthesis of research knowledge with techniques and approaches learned through observation of teaching practice in the school setting and discussions with teachers.
4. Skilfully communicate to a range of audiences and convey clearly technical concepts to different age groups.

Graduate Attributes, Personal & Professional Skills

List the personal attributes and generic transferrable skills this course will help develop. Examples include

- ***Cognitive skills:*** *problem-solving, critical/analytical thinking, handling ambiguity*
- ***Responsibility, autonomy, effectiveness:*** *independent learning, self-awareness and reflection, creativity, decision-making, leadership, organization and time management, flexibility and change management, ethical/social/professional awareness and responsibility, entrepreneurship*
- ***Communication:*** *interpersonal/teamwork skills, verbal and/or written communication, cross-cultural or cross-disciplinary communication*

This course gives a unique opportunity for students to gain transferable interpersonal and communication skills through working with children, young people and their teachers.
It will develop the following UoE graduate attributes:

- curiosity for learning that makes a positive difference
- passion to engage locally and globally.

Students will become:

- critical and reflective thinkers
- effective and influential contributors
- skilled communicators

(see https://www.ed.ac.uk/employability/graduate-attributes/framework)

1. Student-facing course description and additional feedback and assessment information

Except where noted, all fields are required and will go into the DRPS entry for the course (for use by students). Important: any text in DRPS is effectively a contract with students, so should not include details that are likely to change from year to year.

Summary Description *Provide a brief official description of the course, around 100 words. This should be worded in a student-friendly way, it is the part of the descriptor a student is most likely to read. If this course replaces another course, please say so in this summary.*	This course will give fourth year students to opportunity to make a positive contribution to the local community by sharing the knowledge of Informatics with school pupils and teachers. They will work with teachers to design appropriate teaching material and practical projects for computing education in schools, communicate effectively with young people and instil in them passion for computing disciplines, and support them in developing skills necessary in an increasingly digital society. Students will gain a critical understanding of the theory and practice of computer science pedagogy as appropriate for different stages of school learners. In addition, studying this course will enable students to develop a range of communication and organisational skills in a high pressure but supported real world setting. The course offers an in-depth, sustained experience in the classroom to students contemplating a career in education.
Keywords *Give a list of searchable keywords.*	Education, children, classroom, teaching
Course Description *A more detailed student-facing description of the course, which should normally include (a) a more in-depth academic description of the learning aims, nature and context of the course, (b) a rough outline of the content or syllabus, often as bullet points, and (c) a description of how the course will be taught, how students are expected to engage with their learning and how they will be expected to evidence and demonstrate their achievement of the intended learning outcomes.]*	Students will be hosted by a primary or secondary school teacher in a school within Edinburgh, Fife, Borders, Midlothian, West Lothian or East Lothian (in order to leverage the existing connections within the Moray House School of Education Teaching Partnership). The student will spend three hours a week in the school, gradually moving from an observation role to that of a teaching assistant before teaching a class using materials which they have designed. They will be supported by their host teacher and by academic mentors from the School of Informatics and School of Education. The aim of the course is for the students to design and deliver 1-2 classes/a project based on discussions with a classroom teacher, analysis of the appropriate school curricula, assessment of pupils' interests, and feedback received from an academic mentor. Students will receive formative feedback from an academic mentor based on observation notes and reflective writing recorded throughout the year. Course topics include:

	• Computer science in schools – curricula in Scotland and other countries • Good practice in computer science pedagogy – research evidence • Effective teaching techniques • Giving and receiving feedback • Lesson planning Assessment: Students will be formally assessed on two written reports and an oral presentation. **Report 1 (** (to be submitted at the end of semester 1) (50%): A reflective account of their classroom experiences, how they relate to the educational theory and research papers they have read and plans for the teaching materials they will develop. **Report 2** (to be submitted at the end of semester 2) (30%): A summary of the teaching materials which they developed with an explanation of how the materials map to the curriculum and an evaluation of how effective the materials were from the points of view of both learners and teachers. The host teacher will be asked to write a short assessment to be included in this report and considered by the markers. **Oral Presentation** (to be assessed at the end of semester 2) (20%): The student will prepare a presentation which reflects on their experiences of working in schools and the extent to which they achieved their personal learning goals during the course.
Assessment Weightings: *These should correspond approximately to the proportion of learning outcomes that each component assesses. More than 30% coursework requires specific justification.* *The expectation for a 10pt course is 20% coursework with the equivalent of one 15-20hr assessed assignment (but possibly split into smaller pieces). See 'components of assessment' below.*	Coursework ___100__% Report 1 – 50% Report 2- 30% Oral presentation – 20%

Further Assessment Information *Provide any further information that should go on DRPS for students. E.g., if the assessment includes required group work or if students must pass some individual component of assessment as well as the course overall.*	
Components of assessment and time spent on assignments (for BoS only) *If not already included in the course narrative description, please describe the type of assessments (oral presentation, report, programming, etc) and **how each component of assessment will assess the intended learning outcomes**. Where coursework involves group work, it is important to remember that every student has to be assessed individually for their contribution to any jointly produced piece of work.* *Also estimate **how many hours** students will spend on assignments. Please see the School policy on Workload and Assessment, which states that students should not be expected to spend more than 6-7 hrs/wk per 10 credits, including contact hours.* *Note that it often desirable to include formative assignments which are not formally assessed but submitted for feedback, often in combination with peer assessment.*	1. Critique key aspects of emerging research on computer science pedagogy, and analyse how these pedagogies may be applied to deliver topics either within Curriculum for Excellence or the relevant SQA qualifications. *Assessed by Report 1, 20 hours of student work* 2. Engage with the local community by helping to upskill primary and secondary school teachers about up to date topics in Informatics. *Assessed by marker's interpretation of teacher viewpoint which is submitted in report 2.* 3. Design and develop effective teaching material, methodologies, and practical projects for computing modules taught in schools based on a synthesis of research knowledge with techniques and approaches learned through observation of teaching practice in the school setting and discussions with teachers. *Assessed by report 2, 20 hours of work. The materials development will be done incrementally each week.* 4. Skilfully communicate to a range of audiences and convey clearly technical concepts to different age groups. *Assessed by oral presentation, and marker's interpretation of teacher viewpoint which is submitted in report 2.*
Feedback Information *Provide a high-level description of how and what type of feedback will be provided to students, for inclusion in DRPS.*	Students will work closely with their host teacher and academic mentor, receiving regular informal feedback and advice. Students will receive written feedback on report 1 (mid way through the course) which will help them to improve their work for report 2 and the presentation. They will receive written feedback on report 2 and the presentation.
Additional Feedback Information (for BoS use only) *If not already included in the course narrative, provide further details on planned feedback arrangements. This includes how course feedback is solicited from the class and responded to, as well as what feedback students will get (either on work that contributes to their final mark, or not).* *The University is committed to a baseline of principles regarding feedback that we have to implement at every level, and the School encourages submission of at least one piece of written work for formative feedback.*	

In general, formative feedback:

- *Should say how students can improve.*
- *Need not be on individual work (e.g., consider a lecture or document summarizing common issues.)*
- *Can include oral feedback during labs/tutorials*
- *Can include feedback from peers*
- *Clickers/TopHat/equivalents can provide in-class feedback for both students and lecturer.*
- *Is returned in time for other forms of assessment to which it relates, to allow feedforward.*

Breakdown of Learning and Teaching Activities

State how many hours students spend on each part of the course. The total should be 10 x course credits, but please also see the School policy on Workload and Assessment.which states that students should not be expected to spend more than 6-7 hrs/wk per 10 credits, including contact hours.

Assume 10 weeks of lectures slots and 10 weeks of tutorials, but these need not all be used. As a guideline, a 10-pt course typically has 18-20 lecture hours, but should have only around 15 lectures of examinable material; the rest should be used for guest lectures, revision sessions, introductions to assignments, etc.

Contact hours

Hours	Type
6	Lecture Hours
11	Seminar/Tutorial Hours
	Dissertation Project Supervision Hours
	Supervised practical/Workshop/Studio hours
	Feedback/Feedforward hours
51	Summative assessment hours
	Revision Session Hours

Non-contact hours

Hours	Type
66	Directed Learning & Independent Learning hours

In addition, students spend **66** hours visiting classrooms

Total hours: 200

Reading List/Learning Resources

You are encouraged to create resource lists using LEGANTO

Grover, S., & Pea, R. (2013). Computational Thinking in K-12: A Review of the State of the Field. *Educational Researcher*, *42*(1), 38–43. doi:10.3102/0013189X12463051

Grover, S., Cooper, S., & Pea, R. (2014). Assessing computational learning in K-12. *Proceedings of the 2014 Conference on Innovation & Technology in Computer Science Education - ITiCSE '14*, (June), 57–62. doi:10.1145/2591708.2591713

Israel, M., Pearson, J. N., Tapia, T., Wherfel, Q. M., & Reese, G. (2015). Supporting all learners in school-wide computational thinking: A cross-case qualitative analysis. *Computers and Education*, *82*, 263–279. doi:10.1016/j.compedu.2014.11.022

The Primary Teacher's Guide to Teaching Computer Science available at www.teachcs.scot

1. Further information for BoS consideration: sample materials

A full proposal for a new course must include examples of exercises and assessment. Please provide these below, along with publicity information if the course is to be advertised outwith the School.

Course information and publicity *The course web page (typically the Learn landing page) will be linked from the Sortable Course List, and information such as timetables and assignment deadlines must be made available prior to the start of the academic year. Please specify here if any additional info/publicity is needed for your course: typically only if it is aimed largely at non-SoI students.*	no
Sample tutorial/lab sheet questions *Provide a list of tutorial questions and answers and/or samples of lab sheets. These need not be fully fleshed out but should indicate what sort of exercises will be provided to help students learn the material.*	See attached
Sample assessment materials *If the course is primarily assessed by **exam**, provide a sample exam question with model answers. Any non-standard exam format must be justified. The online list of past exam papers gives an idea of typical and alternative exam formats: http://www.inf.ed.ac.uk/teaching/exam_papers/.* *If the course is largely or primarily assessed by **coursework**, provide a sketch of a possible assignment with an estimate of effort against each sub-task and a description of marking criteria.*	See attached example marking scheme for report 2
Any other relevant materials *Include anything else that is relevant, possibly in the form of links. If you do not want to specify a set of concrete readings for the official course descriptor, please list examples here.*	Indicative readings include: Grover, S., & Pea, R. (2013). Computational Thinking in K-12: A Review of the State of the Field. *Educational Researcher*, *42*(1), 38–43. doi:10.3102/0013189X12463051 Grover, S., Cooper, S., & Pea, R. (2014). Assessing computational learning in K-12. *Proceedings of the 2014 Conference on Innovation & Technology in Computer Science Education - ITiCSE '14*, (June), 57–62. doi:10.1145/2591708.2591713 Israel, M., Pearson, J. N., Tapia, T., Wherfel, Q. M., & Reese, G. (2015). Supporting all learners in school-wide computational thinking: A cross-case qualitative analysis. *Computers and Education*, *82*, 263–279. doi:10.1016/j.compedu.2014.11.022 The Primary Teacher's Guide to Teaching Computer Science available at www.teachcs.scot

2. Additional Course Details for DRPS

Except where otherwise noted, these fields are required for entry into EUCLID and will be visible to students in the DRPS entry.

Planned Academic Year of Delivery *(The first year you anticipate the course running, e.g. AY 2019-20)*	*AY 2019-20*
Course Organiser *(By default, the course proposer)*	Judy Robertson
Intended Delivery Period	___Semester 1 ___Semester 2 _X_Full Year ___Summer ___Other (please specify):
Timetable considerations/conflicts *For School use. Please specify any constraints to be considered (e.g. overlap of popular combinations, other specialism courses, external courses etc). Include whether the semester delivery is constrained or could be flexible.*	
Is this course available to visiting students?	___Yes (default) __x No **If no, please provide a justification here:** We need time for the students to get a PVG background check and will interview them in advance, so students must register interest in May of the year before the course is taught.
Required pre-requisite courses *Use sparingly: these are enforced in PATH and can only be waived by approval from the School's Curriculum Approval Officer. Note that cross-year required pre-requisites may prevent MSc students from registering; consider using recommended pre-requisites or "other requirements" instead.*	_x_No ___Yes (please specify full course name(s) and code(s)):
Recommended pre-requisite courses	__x_No ___Yes (please specify full course name(s) and code(s)):
Required co-requisite courses *Specify any courses that must be taken in parallel with the existing course. Note that this leads to a timetabling constraint that should be mentioned elsewhere in the proposal.*	__x_No ___Yes (please specify full course name(s) and code(s)):
Prohibited Combinations *Specify any courses that may not be taken in combination with the proposed course].*	__x_No ___Yes (please specify full course name(s) and code(s)):

Other Requirements/Additional Information *This information is often used by MSc students and students from other Schools to see if they have appropriate background without having done our School's courses. So please avoid course titles, instead list specific knowledge and skills (such as mathematical concepts, programming ability or specific languages, etc).* *Also list any other constraints on registration, for example: "Only available to 4th Year Informatics students including those on joint degrees." or "This course is open to all Informatics students including those on joint degrees, and to students in the School of Mathematics. Other external students whose DPT does not list this course should seek permission from the course organiser."*	__x__ No ___ Yes (please specify):
Visiting Student Pre-requisites	___ Same as "other requirements" ___ Different than "other requirements" (please specify):

3. Placement in degree programme tables: for level 9-11 courses only

This section is for consideration by the Board of Studies and will be used later by ITO to determine where the course will be added to existing degree programme tables.

Is this course restricted to students on a specific degree? *E.g., some courses are only available to students on a specific CDT or MSc.*	_x_ No ___ Yes (please specify and provide justification):
Is this course compulsory for students on any degree(s)?	_x_ No ___ Yes (please specify and provide justification):
Any issues for part-time students? *Normally, part-time students have access to the same courses as full-time students on the equivalent degree. If you anticipate any problems with this, please specify here.*	This would need to be arranged in advance with the host school -we just need notice

For optional courses:

If this course is available but non-compulsory for students on various degrees (most courses), please fill in this section. The choices here determine where the course appears in degree programme tables (DPTs) and the 2-3 character tags are displayed in the Informatics sortable course list.

Should this course be tagged as 'ML' (machine learning foundations and methods)? *Courses with the ML tag are typically very high-demand and most degrees limit the number of ML credits. If your course might appeal to a similar audience but draw off students from these large courses, please select 'no' and choose one of the tags below.*	_x_ No __ Yes
If you chose 'no', please choose at least one of the following tags… *Ideally, select exactly one, unless there is a good argument for more than one. These three are used in various combinations for many of our degrees.*	__ **FSS** (CS foundations, systems, and software) __ **AIA** (artificial intelligence applications and paradigms) _x_ **COG** (cognitive science: including HCI and NLP courses, but not most other AI courses. Please restrict to courses most relevant to natural cognition.)
…and also tick if any of the following tags or categories apply. *Do not tick any of these if you selected 'ML' already.*	__ **NS** (natural systems: e.g., computation by or about biological or social systems. Many COG courses are also NS. This tag is mainly relevant for MSc in Informatics.) __ **SE** (software engineering: including courses that are highly relevant to SE degrees. All SE courses should also be FSS. This tag is mainly relevant for UG SE degrees.) __ Databases and data management systems (used for Data Science MSc and MSc(R))

	__Unstructured data and applications (used for Data Science MSc and MSc(R)) __Level 11 Security courses (used for Security MSc)
If you are not sure which tags are most appropriate or have other questions about this section, please note any comments/issues here.	

4. Comments from colleagues

All course proposal should be sent to relevant colleagues in the area as well as to the appropriate year organizer and BoS Academic Secretary for comment in good time before the BoS meeting. Please indicate here what feedback has been solicited and received.

Additional Comments *Summarise any comments received from relevant individuals prior to proposing the course. If you have not discussed this proposal with others please note this.*	This course was originally suggested by Jane Hillston (in discussion with Helen Pain and Alan Bundy). We have discussed the proposal with Stuart Anderson who was positive, and suggested considering a 40 credit version for the future which could be a project alternative.
Year Organiser Comments *Year Organisers are responsible for maintaining the official Year Guides for every year of study, which, among other things, provide guidance on available course choices and specialist areas. The Year Organisers of all years for which the course will be offered should be consulted on the appropriateness and relevance on the course. Issues to consider here include balance of course offerings across semesters, subject areas, and credit levels, timetabling implications, fit into the administrative structures used in delivering that year.]*	
BoS Academic Secretary Comments *Proposals must be checked by the Secretary of the Board of Studies prior to discussion at the actual Board meeting. This is a placeholder for their comments, mainly on the formal quality of the content provided above.*	