

The University of Edinburgh

Internal Periodic Review

Informatics

Undergraduate and Postgraduate Taught provision

10-11 March 2022

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Executive summary

This report comprises the outcomes from the internal periodic review of undergraduate and postgraduate taught provision of the School of Informatics.

The review team found that the School of Informatics has effective management of the quality of the student learning experience, academic standards, and enhancement and good practice.

The report provides commendations on the subject area's provision, recommendations for enhancement to report back on, and suggestions on how to support developments.

Key commendations

The review team commended the staff and students of the School. The staff, for providing a large, varied and interesting programme, and the students for being passionate advocates for their peers and their programmes. The review team also commended the effort of those staff managing teaching across all levels, and the responsive and strategic management structures that were in place within Informatics, with appropriately experienced staff in specific roles. The review team commended the efforts of Informatics in decolonising the curriculum, and the efforts of the School's professional services staff.

Key recommendations

The top three recommendations that the review team identified for the subject area to prioritise were

Staff and Student Workload [2.2.3]

It is **recommended** that steps must be taken to reduce staff and student workload through reduction in assessment at course and programme level.

Assessment [2.2.5]

The Review Team **recommended** that the School consider how assignments and their assessment criteria are communicated to students prior to assessment. Clear guidance should be given at the outset of each course regarding the marking criteria.

Feedback [2.2.5]

The Review Team **recommended** that, building on the School's ELIR Action Plan, the School should take steps to ensure quality and quantity of useful, timely and meaningful feedback is consistent both across and within courses.

Commendations, recommendations and suggestions

Key strengths and areas of positive practice for sharing more widely across the institution.

No	Commendation	Section in report
1	The review team commends the staff and students of the School. The staff, for providing a large, varied and interesting programme, and the students for being passionate advocates for their peers and their programmes	1.1
2	The review team commends the School on Informatics Connect, and its wider outreach activities in relation to widening participation. (Theme – Equality, Diversity and Inclusion)	2.5.5
3	The review team commends the School for providing a diverse range of activities both within and out with the curriculum which provided opportunities for students personal, professional and academic development.	2.6.3
4	The review team commends the School for Staff and Student weekly meetings, which provided good feedback opportunities. (Theme – Assessment and Feedback)	2.4.2
5	The review team commends the School for the efforts of those managing teaching and learning across all levels. The School had responsive and strategic management structures in place, with appropriately experienced staff in specific roles.	1.1
6	The review team commended the School for their efforts in Decolonising the Curriculum, and the expanding of this to include inclusivity and accessibility. (Theme – Equality, Diversity and Inclusion)	2.5.2
7	The review team commended the School for its efforts to embed quality assurance processes into regular meeting cycles	2.2.7
8	The review team commended the School for its innovation and use of its own systems, both prior to and during the pandemic, specifically in relation to GradeScope and the other previously mentioned technologies in line with pedagogy, and their willingness to explore these	2.8.3
9	The review team commend the School for the opportunity provided by the dissertation project for ambitious industry-related projects	2.6.1
10	The review team commended the School for providing opportunities to the student community to promote peer learning (tutoring, demonstrating, marking and InfoPALS).	2.3.1.7
11	The review team commended the School for its use of University Tutor roles to address issues created by high student enrolment	2.7.5
12	The review team commends the Professional Services staff of the School, specifically the Informatics Teaching Organisation and the Student Support Office	2.3.1.6

Recommendations for enhancement/Areas for further development

Priority	Recommendation	Section in report	Responsibility of
1	The review team recommended that the School must take steps to reduce the workload of both students and staff, and that this should be achieved through reduction in assessment (Theme – Assessment and Feedback)	2.2.3	School Teaching Committee and Boards of Studies
2	The review team recommended that the School consider the quality and quantity of current assessments, including vetting of assessments. The School should seek to avoid diminishing returns in assessment (repetition of tasks testing a particular learning outcome), and this should be a consideration in assessment design (Theme – Assessment and Feedback)	2.2.3	School Teaching Committee and Boards of Studies
3	The review team recommended that the School should consider how assignments are communicated to students, considering the instructions provided prior to assessment, and that clear guidance should be given at the outset of each course regarding the marking criteria (Theme – Assessment and Feedback)	2.2.5	School Teaching Committee and Boards of Studies
4	The review team recommended that the School continue to undertake wholesale reviews of course offerings by individual research units in order to avoid repeatedly assessing the same learning outcomes, and overassessment. (Theme – Assessment and Feedback)	2.2.6	School Teaching Committee and Boards of Studies
5	The review team recommended re-application for Athena Swan accreditation, and continuation of focused recruitment of students and staff from minority backgrounds, including Widening Participation (Theme – Equality, Diversity and Inclusion)	2.5.5	School Management and staff involved in WP
6	The review team recommended that the School seek to ensure that students and staff had a shared understanding of the workload required by the DRPS (Theme – Student Support)	2.2.4	School Teaching Committee and Student Staff Liaison Committees
7	The review team recommended that the School should seek to engage with community building initiatives (Theme – Sense of Belonging)	2.3.1.5	School
8	The review team recommended that, building on the School's ELIR Action Plan, the School should take steps to ensure quality and quantity of useful, timely and meaningful feedback was consistent across and within courses (Theme – Assessment and Feedback)	2.2.5	School
9	The review team recommended that the School should review how activities associated with running courses are allocated between	2.3.1.1	School Management

	course organisers, the Informatics Teaching Office and Teaching Assistants to help to ensure appropriate assignment of tasks and manage workload.		
10	The review team recommended that the School continue to raise their suggestions and concerns in a constructive way with Student Systems and Administration regarding the suitability and implementation of systems such as ESC and Assessment and Progression Tools (APT)	2.3.1.1	School management Informatics Teaching Organisation Student Systems and Administration
11	The review team recommended that the School made the changes to courses which had taken place based on student feedback highly visible, perhaps in the form of a 'You suggested, We responded' campaign, with clear explanations of how a course had changed or improved as a result of student feedback. (Theme – Assessment and Feedback)	2.4.3	School

Suggestions for noting

If an issue is minor but the review team nevertheless wants to flag it as a potentially useful action, it will be couched as a suggestion rather than a formal recommendation. Suggestions are not tracked in onward reporting.

No	Suggestion	Section in report
1	In relation to Decolonising the Curriculum, it is suggested that the School continue to engage and reflect on these processes and encourage further development in this area	2.5.2
2	The review team noted that the breadth and flexibility of course choices could make things complicated when it came to assessment loads, deadlines, and portfolios. Consolidation had taken place for Years 2 and 3, and the review team suggested that School should explore how to continue consolidation across other years and courses	2.2.2

Section A – Introduction

Scope of review

Range of provision considered by the review (Appendix 1).

The Internal Periodic Review of Informatics in 2021/22 consisted of:

- The University's remit for internal review (Appendix 2)
- The subject specific remit for the review (Appendix 3):
 - Staff and Student Workload/Assessment and Feedback
 - Equality, Diversity and Inclusion
- The Reflective Report and additional material provided in advance of the review (listed in Appendix 4)
- The meeting by the review team including consideration of further material
- The final report produced by the review team
- Action by the subject area and others to whom recommendations were remitted following the review

Review Team Members

Convener	Dr Richard Holt, School of Economics, University of Edinburgh
External Member	Professor Ian Miguel, School of Computer Science, University of St. Andrews
External Member	Professor Kerstin Eder, Department of Computer Science, University of Bristol
Student Member	Ms Leah Duncan-Karrim, School of Literatures, Languages and Cultures, University of Edinburgh
Internal Member	Dr Dan Swanton, School of GeoSciences, University of Edinburgh
Internal Member	Dr Victoria Rodner, Business School, University of Edinburgh
Review Team Administrator	Mr Stuart Fitzpatrick, Academic Services

The Subject area

The School of Informatics is one of seven Schools within the College of Science and Engineering.

Physical location and summary of facilities

The School is based in the University's Central Area, with facilities in both Appleton Tower and the Informatics Forum, located on or near George Square.

Date of previous review

The previous review of the School of Informatics took place on 25 and 26 February 2015.

Reflective Report

The report was prepared by Professor Björn Franke, Director of Teaching, with input from Informatics Student Reps, members of the Informatics Teaching Executive, and teaching staff. Informal consultations were held with student reps as part of weekly staff-student liaison meetings, and discussions with staff. The reflective report received sign off from the Head of School, Professor Jane Hillston.

The subject-specific remit items and the data supporting the reflective report were discussed at the School's General Meetings and Teaching Committee meetings, where opportunities were provided to feedback on themes and remit items. The School has liaised with students through student reps as part of both the weekly staff-student rep meetings and the end-of-year staff-student liaison meetings. Themes articulated by both staff and students were collated, discussed and prioritised in the School's Strategy Committee and by the School's Executive Group. Additional input was drawn from the National Student Survey (NSS) and Postgraduate Taught Experience Survey (PTES).

Section B – Main report

1 Strategic overview

1.1 The review team were very impressed with the commitment and enthusiasm shown by the staff and students they met with during the review. The review team **commended** staff and students of the School. The staff, for providing a large, varied and interesting programme, and the students for being passionate advocates for their peers and their programmes.

The School of Informatics has an international reputation for innovation and research, and attracts a high volume of applications from prospective students each year across all levels of provision.

Teaching is managed by the Director of Teaching, supported by two deputy Directors of Teaching and a number of teaching administration roles held by members of teaching staff. The School has dedicated Postgraduate Taught Programme Directors. The Informatics Teaching Organisation (ITO) provides professional administrative support and members of these staff had representation within the School's committee structures. The review team **commended** the School for the efforts of those managing teaching and learning across all levels. The School had responsive and strategic management structures in place, with appropriately experienced staff in specific roles.

The School provides the opportunity to engage with research through projects offered to final year Undergraduate students and Postgraduate Taught students in the form of research projects. Projects proposed by teaching staff were oftentimes aligned with ongoing research projects. Students additionally had the opportunity to self-propose research projects.

The strategic plan regarding Learning and Teaching was developed by the Director of Learning and Teaching, discussed at the School Strategy Committee, and included as part of the School's Annual Planning report. The School was committed to the University's Learning and Teaching Strategy, and were actively engaged with the forthcoming Curriculum Transformation programme.

2 Enhancing the student experience

2.1 The approach to enhancing Learning and Teaching

2.1.1 The School's creation of the Deputy Director of Teaching (Curriculum) role had led to a more formalised curriculum design and development process. Discussions around proposed new courses involved interactions with all relevant stakeholders prior to a proposal being brought to the Board of Studies.

2.1.2 Programmes and courses were reviewed internally by the Director of Teaching (DoT), Deputy Director of Teaching (Curriculum) (DDoT(C)) and nominated institute representatives against SCQF criteria. Learning outcomes and course descriptors were published, with course materials being widely available. The appointment of a DDoT(C) with dedicated oversight of curriculum development, weekly meetings between the DoT and DDoT(C), and input from nominated institute representatives to a two-staged course approval scheme had streamlined programme and course

approval processes. Student input was regularly sought, and the School required course proposal student surveys as an additional input.

2.1.3 Students were encouraged to engage in Study Abroad programmes, but this did not form a requirement of any Informatics programmes. In recent years Informatics had expanded its range of exchange partners, but progress in this area had slowed due to the effects of the Covid-19 pandemic.

2.2 Assessment and Feedback

2.2.1 The School had specifically invited the review team to focus on Assessment and Feedback, and the related aspect of both staff and student workload, as part of their Subject Specific Remit items. Over the course of the review visit, assessment and feedback had been widely discussed in relation to a number of matters, including, but not limited to, the quality, quantity, frequency and necessity of both assessment and feedback, and how this interacted with staff and student workload.

2.2.2 The review team had heard, through meetings with both students and staff that the workload involved in both undergraduate and postgraduate taught degree programmes offered by the School was substantial. This was as a result of the combination of course assessments and examinations, and the wide portfolio of courses offered by the School of Informatics. Whilst the wide array of subjects on offer were seen as an attractive attribute of the School to students, the review team noted that the breadth and flexibility of course choices could make things complicated when it came to assessment loads, deadlines, and portfolios. Consolidation had taken place for Years 2 and 3, and the review team **suggested** that School should explore how to continue consolidation across other years and courses.

2.2.3 The review team **recommended** that the School must take steps to reduce the workload of both students and staff, and that this be achieved primarily through reduction in assessment at course and programme level. The review team **recommended** that the School consider the quality and quantity of current assessments, including vetting of assessments. The School should seek to avoid diminishing returns in assessment (repetition of tasks testing a particular learning outcome), and this should be a consideration in assessment design.

2.2.4 The review team had noted during meetings with students that it was not uncommon for students at all levels to feel overburdened in assessment. Students felt that it was a struggle to meet the workloads required of each course whilst still maintaining a semblance of work and life balance, noting that if they wished to do well, it was not unusual to work extremely long hours on coursework and assignments. The review team **recommended** that the School seek to ensure that students and staff had a shared understanding of the workload required by the DRPS.

2.2.5 The review team had heard accounts from students that it was not uncommon for the quality and quantity of feedback to vary within different courses. The timeliness of feedback was also an area where students had voiced concern. Whilst noting that efforts were made by staff to try to ensure provision of feedback happened within appropriate timescales, it was clear to the review team that a combination of factors were preventing this from happening. This created a degree of

misunderstanding. The review team noted issues such as marking loads, staffing availability and resources, requirements placed on the School by the University in relation to new systems, and a sense that students were not always fully aware of what constituted feedback. It was clear that students considered and expected feedback to be something that provided insight into their work, and that it provide advice on what could be improved. Students had noted frustration that there were pieces of assessment which required substantial amounts of time and effort to complete, and this frustration was compounded when the feedback provided on these pieces of assessment was slight, or seemingly lacking in insight or explanation to the extent which students felt it beneficial. The review team also noted that a number of assignments in Informatics necessarily involved the working on and submission of computer code, which could be time consuming to carry out, but equally time consuming to mark and provide feedback on. The review team **recommended** that the School should consider how assignments are communicated to students, considering the instructions provided prior to assessment, and that clear guidance should be given at the outset of each course regarding the marking criteria. The review team also **recommended** that, building on the School's ELIR Action Plan, the School should take steps to ensure quality and quantity of useful, timely and meaningful feedback was consistent across and within courses. The review team noted that it may be of use to create and share marking rubrics to structure feedback (e.g. *Strengths/Weaknesses/How to improve?*). These could add clarity for students, but also set expectations for markers, and help to ensure consistency between markers.

2.2.6 The review team noted that Informatics were in the process of revisiting courses within their existing portfolio through their Board of Studies. The review team **recommended** that the School continue to undertake wholesale reviews of course offerings by individual research units in order to avoid repeatedly assessing the same learning outcomes, and overassessment (see 2.2.3 above).

2.2.7 The review team had heard that the School were trialling the involvement of an element of course enhancement discussions and related quality assurance processes into Board of Examiners meetings, as there was a sense that following the introduction of APT that Boards of Examiners meetings had become algorithmic. The review team **commended** the School for its efforts to embed quality assurance processes into regular meeting cycles.

2.3 Supporting students in their learning – all aspects of support relevant to students' learning

2.3.1 Academic and student support structures and mechanisms

2.3.1.1 The School of Informatics had a dedicated team of Student Support Officers and operated an effective Personal Tutoring system. The review team noted that the introduction of the new centralised Extensions and Special Circumstances (ESC) Service had created a number of issues for the Informatics Teaching Organisation and the Student Support Office, who had previously relied on a School level system which had the ability to accurately track Special Circumstances applications and extensions requests at a level which provided necessary flexibility and responsiveness to student needs. The introduction of a centralised system across the University meant that oversight, processing and handling of Special Circumstances applications was now undertaken elsewhere, meaning Student Support Officers were unable to have the same levels of interaction with students, and felt they had lost the

ability to provide holistic and tailored pastoral support. From a technical standpoint, the method by which extensions were now granted also sat away from the School. The ability of students to request extensions to a centralised service which did not directly interface with School level work planning or deadlines created difficulty in the School's ability to plan for peaks in workflow and marking, which in turn compounded issues already noted in this report regarding timeliness of marking and feedback processes. The review team understood that the School had raised these issues with the ESC service. The review team noted their concerns and **recommended** that the School continue to raise their suggestions and concerns in a constructive way with Student Systems and Administration regarding the suitability and implementation of systems such as ESC and Assessment and Progression Tools (APT). The review team **recommended** that the School should review how activities associated with running courses are allocated between course organisers, the Informatics Teaching Office and Teaching Assistants to help to ensure appropriate assignment of tasks and manage workload.

2.3.1.2 The School was conscious of the need to support students, especially those in earlier years who might arrive to the School with little or no programming experience. The School had noted within their Reflective Report that students in first year were making intensive use of InfBase and InfPALS, with the InfPALS Scheme in particular being well received. The School were also working with the Centre for Open Learning on a new CSE Foundation programme.

2.3.1.3 The School had increased efforts in promoting mental health and wellbeing, and had provided training in mental health first aid.

2.3.1.4 At a Postgraduate Taught level, the School had noted a high degree of variance in academic standards between international students at a Postgraduate Taught level specifically. The School provided relatively few courses which offered 'catch up' in mathematical or programming background skills as these were required competencies according to the admissions criteria. However, certain cohorts still appeared to struggle.

2.3.1.5 At a Postgraduate Taught level, Programme Directors were working to create a sense of belonging amongst cohorts of MSc students. The review team noted that the School's Postgraduate Taught community was populated heavily by students of a single nationality, whilst the School's Undergraduate community was divided by those students who had a traditional undergraduate experience prior to the Covid-19 pandemic, and those who had undertaken junior honours primarily online and remotely. This, coupled with the physical separation of teaching facilities (based in Appleton Tower) and staff offices (in the Informatics Forum), meant that whilst the School was home to a large number of students, there was perhaps less of a sense of a cohesive community between students, and also students and staff. The review team therefore **recommended** that the School should seek to engage with community building initiatives.

2.3.1.6 The review team **commended** the Professional Services staff of the School, specifically the Informatics Teaching Organisation and the Student Support Office.

2.3.1.7 The students that met with the review team were very positive about their experiences of peer assisted learning. A number of students in senior honours and Masters years were provided with the opportunity to tutor or demonstrate on junior level classes and found this to be enjoyable and useful. The review team

commended the School for providing opportunities to the student community to promote peer learning (tutoring, demonstrating, marking and InfoPALS).

2.4. Listening to and responding to the Student Voice

2.4.1 Within the School of Informatics, all programmes and year groups had elected student representatives. Student representative in Informatics sat on School level Committees such as Boards of Studies and Teaching Committees. Informatics students also had an elected Students' Association representative.

2.4.2 Students have opportunities to provide both positive and negative feedback through the Student representatives, Staff Student Liaison Committees (SSLCs) and programme and course survey feedback mechanisms. The review team noted specifically that the School of Informatics not only ran 'traditional' SSLC meetings within the semester timetable, but also ran weekly staff-student meetings, which the School and students both reported to be effective in addressing problems and issues as and when they occurred. The review team **commended** the School for these Staff and Student weekly meetings, which provided good feedback opportunities.

2.4.3 Students reported that although the weekly meetings were useful, as were the SSLCs, there was a feeling that the ability of these in fixing what were regarded as 'longer term' issues as opposed to short term or unforeseen problems was less effective. Equally, the School had noted in the Reflective Report that it was apparent through NSS and other survey results, and communications during these weekly meetings, that there were occasions where students felt that their voice was not being heard, in spite of the School undertaking changes or making amendments to provision in good faith based on feedback provided from both weekly meetings and SSLC meetings. The review team **recommended** that the School made the changes to courses which had taken place based on student feedback highly visible, perhaps in the form of a 'You suggested, We responded' campaign, with clear explanations of how a course had changed or improved as a result of student feedback.

2.5 Accessibility, Inclusivity and Widening Participation (WP)

2.5.1 The School of Informatics ran 'Informatics Connect', which was an optional non-credit bearing course designed to support 1st year undergraduates in transitioning to student life. This course had received recognition from the wider University, with the Course Organiser receiving a Principal's medal for their efforts on the course. In addition to this, the School intends to run pre-arrival courses each August focusing on programming and mathematical skills in order to help students better prepare for their first year of University. The School had allocated University teachers to these courses to ensure quality and consistency of their delivery.

2.5.2 In relation to the School's actions on Decolonising the Curriculum, in early 2021 all course organisers had been required to identify curriculum changes designed to make the curriculum and its delivery as representative as possible. This had grown beyond simply focusing on Decolonising the Curriculum to an initiative aimed at fully embracing the idea of inclusion, with focus on decolonising content, decolonising delivery, and mainstreaming these changes. This also included embedding the consideration of Diversity issues in course and programme approval mechanisms. The review team **commended** the School for their efforts in Decolonising the Curriculum, and the expanding of this to include inclusivity and accessibility. The

review team **suggested** that the School continue to engage and reflect on these processes and encourage further development in this area.

2.5.3 The School had previously held Athena Swan at a Silver level, but this certification had lapsed as the School had been unable to renew their application for the award in Academic Year 2021/22 due to lack of resource. The School had stated their aim to submit a new application and achieve re-accreditation in Academic Year 2022/23.

2.5.4 Informatics had begun work related to 'Informatics Connect' on an outreach programme targeting Schools in SIMD 20 areas. The School had a number of strategies in place for recruitment of underrepresented student and staff groups, which operated to varying degrees of success. Due to a high volume of applications from overseas students, and the way in which the College of Science and Engineering's admissions processes operated, the School felt unable to take more direct steps in implementing recruitment or employment strategies designed to address underrepresentation or widening participation. With specific regard to widening participation, the School had noted problems with the current set up of the Scottish Curriculum (Curriculum for Excellence) and the limited provision in some high schools based in areas of deprivation as designated by the SIMD. It was increasingly uncommon to find computing based study within National 5 or Higher, more so when a School was limited in the number of National 5 and Higher courses that it could offer.

2.5.5 The review team **commended** the School on Informatics Connect, and its wider outreach activities in relation to widening participation. Whilst the review team understood the reasoning behind the non-renewal of the School's Athena Swan status, the review team **recommended** re-application for Athena Swan accreditation, and continuation of focused recruitment of students and staff from minority backgrounds, including Widening Participation.

2.6 Development of Employability and Graduate Attributes

2.6.1 The School of Informatics had a large number of staff who were involved with industry collaborations, which in turn helped to form the curriculum within the School. As noted at the outset of the report, honours projects proposed by teaching staff were oftentimes aligned with ongoing research projects in the School with links to industry. The School provided opportunities for students to undertake work on these projects, as well as proposing their own projects. Whilst all Honours projects were within the correct SCQF level, the School broke these projects down into sub-sections of 'harder' projects and 'easier' projects, with harder projects being known to have a steeper learning curve due to their nature and links to industry. The School had a high demand from industry for involvement in supervision and projects. The School felt that these projects, involving a large degree of autonomous and self-directed learning, were beneficial to the development of graduate attributes. This view was shared by students, who had specifically noted this as an attractive feature of the degree programmes offered. The review team **commended** the School for the opportunity provided by the dissertation project for ambitious industry-related projects.

2.6.2 The School of Informatics encouraged students in year 3 to undertake industrial internships during the summer between years 3 and 4 of their degree programmes, which provided relevant sector experience to students.

2.6.3 The School implemented key employability attributes across their provision, such as coverage of professional issues, computer security, and team-working skills. The School had a dedicated Informatics careers advisor, and offered subject-specific careers training in technical or coding interviews. The School had also created new SLICs which allowed students to match employability related learning outcomes with extra-curricular activities for credit. The review team **commended** the School for providing a diverse range of activities both within and out with the curriculum which provided opportunities for students personal, professional and academic development

2.7 Supporting and developing staff

2.7.1 The School of Informatics utilised both University Teachers and University Tutors. University Tutors were encouraged to engage with Higher Education Academy (HEA) qualification, the Postgraduate Certificate in Academic Practice, and the Edinburgh Teaching Award (EdTA). Writing retreats and workshops were organised to help individuals in these roles focus on attaining these qualifications.

2.7.2 The School offered training for Postgraduate Tutors during induction week, and the week before start of Semester 2. This training included pre-recorded material on essentials of carrying out the different postgraduate tutoring roles, covering the basics of online virtual learning environments and different tools (LEARN, Piazza). There were weekly training sessions that gradually moved to every two weeks which covered topics such as pedagogy. Tutors and demonstrators were paid for participation in this training.

2.7.3 In relation to early career staff, staff were given reduced teaching loads in the first two years, and were allocated part of a course to teach alongside a more senior colleague. These staff also normally had a reduced administrative workload.

2.7.4. Staff were entitled to a sabbatical every 8 years. University Teachers were included in this. All staff receive Annual Reviews as part of continual professional developed (CPD) provision.

2.7.5 The School of Informatics had created University Teacher roles to help with the delivery of tutorials in key areas and larger courses, and University tutor positions to help with the delivery of tutorials in high demand areas. The School also carried out yearly recruitment of suitable students at all levels of study (senior UG, PGT and PGR) for various smaller teaching support roles like tutors, demonstrators and Teaching Assistants. The review team **commended** the School for its use of University Tutor roles to address issues created by high student enrolment.

2.8 Learning environment (physical and virtual)

2.8.1 As noted at the outset of the report, and mentioned in relation to the sense of community, Informatics is based in the University's central area. Students are primarily based within Appleton Tower, with staff based in the Informatics Forum on George Square. Due to the Covid-19 pandemic, physical presence of students in Appleton Tower was limited.

2.8.2 As a result of this, Informatics had made attempts to build a sense of online community within the student body. However, there was a feeling that online platforms provided by the University were less efficient than students and staff would have liked in achieving the desired aim of community building. The review team noted that Course Organisers had been creative in their approach to blended learning spaces, seeking platforms which provided a wide range of options to facilitate discussion and co-operation.

2.8.3 Informatics relied heavily on the Piazza online forum, which it used for all of its courses. The level of student and staff interaction on this forum was felt to be beneficial by both parties. Piazza was not a University provided tool, and the School had found funding to purchase a commercial licence for use. The review team had also heard during discussion that Informatics had been instrumental in the introduction of GradeScope software prior to the beginning of the Covid-19 pandemic. Informatics had also purchased a commercial licence for the use of GradeScope in teaching and marking, and had worked with the University's Data Protection Officer to ensure a Data Protection Impact Assessment (DPIA) was completed on the software prior to its introduction. Informatics had taken the lead on the introduction of this software, and at the onset of the Covid-19 pandemic, the pre-existing DPIA for GradeScope allowed this software to be adopted by other Schools to aid in the University's shift to a predominantly online learning model in early to mid-2020. The review team **commended** the School for its innovation and use of its own systems, both prior to and during the pandemic, specifically in relation to GradeScope and the other previously mentioned technologies in line with pedagogy, and their willingness to explore these.

3 Assurance and enhancement of provision

3.1 Setting and maintaining academic standards

The School operates within the University's Quality Framework and the review team is confident that academic standards are high. The approach employed within the School to setting, maintaining and reviewing academic standards is appropriate. Standards are continually reviewed through External Examiner reports, student feedback and annual monitoring.

Appendices

Appendix 1: Range of provision considered by the review

Provision delivered in collaboration with others – Transnational education, work-based provision and placements. (Using I)

Subject Area	Programme Code	Programme Name
Informatics	PTMSCADEIN1F	Advanced Design Informatics (MSc) (Full-time)
Informatics	PTMSCADTFC1F	Advanced Technology for Financial Computing (MSc) - 1 Year (Full-Time)
Informatics	PTMSCAINTL1F	Artificial Intelligence (MSc) (Full-time)
Informatics	PTMSCAINTL2P	Artificial Intelligence (MSc) (Part-time) - 2 Years
Informatics	PTMSCCMPSI1F	Computer Science (MSc) (Full-time)
Informatics	PTMSCCOGSC1F	Cognitive Science (MSc) (Full-time)
Informatics	PTMSCCOGSC1P	Cognitive Science (MSc) (Part-time) - 2 Years
Informatics	PTMSCCOMSC1P	Computer Science (MSc) (Part-time) - 2 Years
Informatics	PTMSCCSPTR1F	Cyber Security, Privacy and Trust (MSc) - 1 Year (Full-time)
Informatics	PTMSCCSPTR1P	Cyber Security, Privacy and Trust (MSc) - 2 Years (Part-time)
Informatics	PTMSCCSPTR2P	Cyber Security, Privacy and Trust (MSc) - 3 Years (Part-time)
Informatics	PTMSCCSPTR3P	Cyber Security, Privacy and Trust (Graduate-Level Apprenticeship) (MSc) - 2 Years (Part-Time)
Informatics	PTMSCDATSC1F	Data Science (MSc) (Full-time)
Informatics	PTMSCDATSC1P	Data Science (MSc) (Part-time) - 2 Years
Informatics	PTMSCDATSC2P	Data Science (MSc) (Part-time) - 3 Years
Informatics	PTMSCDESIN1F	Design Informatics (MSc) (Full-time)
Informatics	PTMSCHIPEC1U	High Performance Computing (MSc) (Online Learning) (ICL) - 3-6 Years
Informatics	PTMSCHPCDS1F	High Performance Computing with Data Science (MSc) (Full-time)
Informatics	PTMSCHPCDS1P	High Performance Computing with Data Science (MSc) - 2 Years (Part-time)
Informatics	PTMSCHPCDS2P	High Performance Computing with Data Science (MSc) 3 Years (Part-time)
Informatics	PTMSCHPCDS3P	High Performance Computing with Data Science (MSc) (Online Learning) (ICL) - 3-6 Years
Informatics	PTMSCHPCMP1F	High Performance Computing (MSc) (Full-time)
Informatics	PTMSCHPCMP2P	MSc High Performance Computing - 2 Years (Part-time)
Informatics	PTMSCHPCMP3P	High Performance Computing (MSc) 3 Years (Part-time)
Informatics	PTMSCINFEM1F	Informatics (European Master) (MSc)
Informatics	PTMSCINFEM1P	Cognitive Science (MSc) (Part-time) - 3 Years
Informatics	PTMSCINFEM2P	Computer Science (MSc) (Part-time) - 3 Years
Informatics	PTMSCINFEM5P	Artificial Intelligence (MSc) (Part-time) - 3 Years
Informatics	PTMSCINFMT1F	Informatics (MSc) (Full-time)
Informatics	PTMSCINFMT2P	Informatics (MSc) (Part-time) - 3 Years
Informatics	PTMSCINFMT3P	Informatics (MSc) (Part-time) - 2 Years
Informatics	PTPDVHIPEC1P	High Performance Computing (PG ProfDev) (Online Learning) (ICL) - 2 Years
Informatics	PTPDVHPCDS1P	High Performance Computing with Data Science (PG ProfDev) (Online Learning) (ICL) - 2 Years
Informatics	PTPGCHIPEC1U	High Performance Computing (PgCert) (Online Learning) (ICL) - 1-2 Years
Informatics	PTPGCHPCDS1P	High Performance Computing with Data Science (PgCert) (Online Learning) (ICL) - 1-2 Years
Informatics	PTPGCROBAS1F	Robotics and Autonomous Systems (UoE Lead with HWU) (PgCert) - 9 Months (Part-Time)
Informatics	PTPGCROBAS2F	Robotics and Autonomous Systems (Non-UoE Lead with HWU) (PgCert) - 9 Months (Part-time)
Informatics	PTPGDCSPTR1F	Cyber Security, Privacy and Trust (PgDip) - 9 Months (Full-time)
Informatics	PTPGDDATSC1F	Data Science (PgDip) (Full-time)
Informatics	PTPGDDATSC1P	Data Science (PgDip) (Part-time) - 2 Years
Informatics	PTPGDDATSC2P	Data Science (PgDip) (Part-time) - 3 Years

Informatics	PTPGDHIPEC1U	High Performance Computing (PgDip) (Online Learning) (ICL) - 2-4 Years
Informatics	PTPGDHPDCDS1P	High Performance Computing with Data Science (PgDip) (Online Learning) (ICL) - 2-4 Years
Informatics	PTPGDHPCMP1F	High Performance Computing (PgDip)
Informatics	PTPGDINFMT1P	Informatics (PgDip) - 2 Years (Part-time)
Informatics	PTPGDROBAS1F	Robotics and Autonomous Systems (UoE Lead with HWU) (PgDip) - 12 Months (Full- Time)
Informatics	PTPGDROBAS2F	Robotics and Autonomous Systems (Non-UoE Lead with HWU) (PgDip) - 12 Months (Full-Time)
Informatics	UTAICSC	Artificial Intelligence and Computer Science (BSc Hons)
Informatics	UTAIMAT	Artificial Intelligence and Mathematics (BSc Hons)
Informatics	UTAIMNG	Artificial Intelligence with Management (BEng Hons)
Informatics	UTAINTL	Artificial Intelligence (BSc Hons)
Informatics	UTAISEN	Artificial Intelligence and Software Engineering (BEng Hons)
Informatics	UTBSCDATSC1F	Data Science (Graduate Apprenticeship) BSc - 4 Years
Informatics	UTBSCINFGE1F	BSc General INF
Informatics	UTBSCINFIS1F	BSc Ordinary Sciences INF
Informatics	UTBSHAINPS1F	Artificial Intelligence with Psychology (BSc Hons)
Informatics	UTCMPMA	Computer Science and Mathematics (BSc Hons)
Informatics	UTCMPMS	Computer Science and Management Science (BSc Hons)
Informatics	UTCMPPH	Computer Science and Physics (BSc Hons)
Informatics	UTCMPSE	Computer Science and Electronics (BEng Hons)
Informatics	UTCMPSI	Computer Science (BSc Hons)
Informatics	UTCMPSIBE	Computer Science (BEng Hons)
Informatics	UTCMPWM	Computer Science with Management (BEng Hons)
Informatics	UTCOGSC	Cognitive Science (MA Hons)
Informatics	UTCOGSCBS	Cognitive Science (BSc Hons)
Informatics	UTCOPLI	Computational Linguistics (BSc Hons)
Informatics	UTINFMT	Informatics (MInf)
Informatics	UTSWENG	Software Engineering (BEng Hons)
Informatics	UTSWENM	Software Engineering with Management (BEng Hons)
Informatics	VSCRDINFFY	Full Year Courses for Visiting Students INF
Informatics	VSCRDINFS1	Semester 1 Courses for Visiting Students INF
Informatics	VSCRDINFS2	Semester 2 Courses for Visiting Students INF
Informatics	VSCRDINFUY1P	Visiting UG Student in INF - FY (ICL)

Appendix 2 – University remit

The University remit provides consistent coverage of key elements across all of the University's internal reviews (undergraduate and postgraduate).

It covers all credit bearing provision within the scope of the review, including:

- Provision delivered in collaboration with others
- Transnational education
- Work-based provision and placements
- Online and distance learning
- Continuing Professional Development (CPD)
- Postgraduate Professional Development (PPD)
- Provision which provides only small volumes of credit
- Joint/Dual Degrees
- Massive Open Online Courses MOOCs (even if non-credit bearing)

1. Strategic overview

The strategic approach to:

- The management and resourcing of learning and teaching experience,
- The forward direction and the structures in place to support this.
- Developing business cases for new programmes and courses,
- Managing and reviewing its portfolio,
- Closing courses and programmes.

2. Enhancing the Student Experience

The approach to and effectiveness of:

- Supporting students in their learning
- Listening to and responding to the Student Voice
- Learning and Teaching
- Assessment and Feedback
- Accessibility, Inclusivity and Widening Participation
- Learning environment (physical and virtual)
- Development of Employability and Graduate Attributes
- Supporting and developing staff

3. Assurance and Enhancement of provision

The approach to and effectiveness of maintaining and enhancing academic standards and quality of provision in alignment with the University Quality Framework:

- Admissions and Recruitment
- Assessment, Progression and Achievement
- Programme and Course approval
- Annual Monitoring, Review and Reporting
- Operation of Boards of Studies, Exam Boards, Special Circumstances
- External Examining, themes and actions taken
- Alignment with SCQF (Scottish Credit and Qualifications Framework) level, relevant benchmark statements, UK Quality Code
- Accreditation and Collaborative activity and relationship with Professional/Accrediting bodies (if applicable)

Appendix 3 Subject specific remit items

- **Feedback and Assessment**

The School noted that the NSS results in this area showed that students were dissatisfied with the perceived quality of feedback that they received, particularly in relation to feedback received on larger pieces of work. The School also noted that it was not uncommon that students did not recognise some feedback as feedback, instead expecting or desiring focused and detailed individual feedback. In relation to assessment, the School reported that students and staff alike found it difficult to articulate or fully understand the operation of the University's Extended Common Marking Schemes (ECMS). The School also reported that the curriculum was very assessment intensive, and that this was a situation which had developed over a number of years. This had led to some courses with less credit weighting having equal workloads to courses with higher credit weightings. The School welcomed the Review Team's thoughts on what steps could be taken to address these issues.

- **Staff & Student Workload**

The School welcomes the review panel's thoughts on the issue of workloads for both student and staff. Whilst acknowledging that this issue was related to the first subject specific remit item on feedback and assessment, it was clear to the School that the assessment design could be optimised in a way which afforded both students and staff more time whilst still ensuring that the courses and coursework in question operated against well-defined learning outcomes. The design of the Informatics degrees, especially at MInf and Masters level, meant that staff were supervising students all year as a result of the timings of research projects and dissertation elements of these programmes. Supervision was one of the most intensive calls on staff time. There was also concern regarding workloads as a result of the University's response to the Covid-19 pandemic.

- **Equality, Diversity and Inclusion**

The School welcomes the review panel's thoughts on Equality, Diversity and Inclusivity (EDI) practice and initiatives. Whilst the School of Informatics was above the sector average for female students, the wider sector still saw under representation of female students at both undergraduate and postgraduate taught level. Female staff were also under represented in some research areas. The School also expressed desire to attract more students from a Widening Participation background, and a wish to increase the diversity of the student body, specifically in relation to the postgraduate taught community. The School additionally wished to explore gender issues in relation to teaching support staff, where it was not uncommon for staff turnover to be high.

Appendix 4 Additional information considered by review team

Prior to the review visit:

- Reflective Report & Appendices
- ELIR Action Plan
- Decolonising the Curriculum
- School Quality Assurance Reports: 2020/2021, 2019-2020, 2018-2019,
- External Examiners Summary reports (UG and PGT): 2017-2021
- School Organisational Chart
- Current subject area Staff information
- Proposed Professional Services structure from January 2022
- Learning and Teaching team
- Programme Handbooks (UG years 1-5, PGT, New Students Handbook)
- Programme specification information
- Statistical information
- NSS Results 2021
- PTES Results 2021
- Student Staff Liaison Committee meeting minutes (November 2020-May 2021)
- List of programmes and courses
- Previous TPR report and response
- QAA Subject Benchmarking Statement
- Personal Tutor Statement
- Academic Standards comments
- Student Voice arrangements
- Student Representation arrangements
- Quality Assurance arrangements
- University of Edinburgh Standard Remit 2020/21
- Subject specific remit items
- Accreditation Visit decision

Appendix 5 Number of students

Undergraduate

