FACULTY OF ENGINEERING, MATHEMATICS AND SCIENCE QUALITY REPORT (2017-18)

1. EXECUTIVE SUMMARY

For the Faculty of Engineering, Mathematics and Science (FEMS), 2017-18 was dominated by TEP, the Global Relations Strategy and E3. Credit must be paid to the exceptionally hard working FEMS staff who engaged with these projects in addition to the day-to-day delivery of the academic mission of the Schools and Faculty, in spite of often chronic under-resourcing.

Undergraduate teaching:

The Faculty engaged proactively with the Trinity Education Project (TEP) throughout the year. The modernisation of Fresher teaching throughout the Faculty should complete this Summer. Schools are expecting to continue to assign substantial resources to TEP in the coming year, as the TEP principals are expanded into Sophister years. The successful integration of student placements has proven to be a complex issue for some science Schools.

Faculty-wide, progression rates did not meet the College target of 90%.

- September 2018 saw the first new entrants into the four-stream Science programme, which integrates and streamlines the previous TR071 Science and five direct entry courses. Streaming prior to entry would be expected to have a positive impact on the retention rates, and this will be assessed in next year's report.

- The Faculty will investigate if there are any underlying causes for non-progression in the four other (non-streamed) courses that fell below the 90% target.

The Faculty is happy with the completion rate for modular evaluation, the extent and timeliness of the feedback provided to students and the return rate for External examiner reports, all close to (or achieving) 100%.

The FEMS Teaching Support Group has held monthly lunchtime sessions since early 2018, sharing best practise and lessons learned through an informal TeachMeet format. This has proved very successful, with TeachMeets focussing on a variety issues, from student engagement issues, to gathering evidence of impact of different teaching methods, effective group work, and the role of written examinations in light of the TEP focus on alternative assessments.

Student recruitment and business planning:

FEMS Schools have put a tremendous amount of effort into student recruitment and business planning over the last number of years. As a result, the Faculty has in-depth knowledge of the courses and programmes, the markets responsive to our offerings, and has plans to predict staff and student numbers in the coming years.

Following the success of the Thapar programme in particular, the Faculty sees great potential in partnerships and will work with Global Relations to exploit any opportunities that may arise.

The stabilisation of the College's approach to budgeting and the BBM has allowed Schools to have foresight of their expected income in the coming years, enabling better medium to long term planning.

Athena Swan: Accreditation to Athena SWAN is a priority for the Faculty. All 8 Schools have assigned Champion to lead and promote the Athena SWAN initiative, with Self-Assessment Teams

(SATs) up and running in most Schools.

Three FEMS Schools have been accredited with Athena SWAN bronze awards since 2015; all three resubmitted for second accreditation last November. Of the remaining Schools, one expects to submit an application in April 2019, with the other three aiming for a November submission.

The Faculty has provided financial support for the applications and expects to recruit an Athena SWAN officer, with responsibility for project managing the November submissions, in the coming months.

Website: Despite some headway made last year, the full integration and coordination of the undergraduate science websites remains an issue, and may be inhibiting recruitment of NEU students in particular. This is a key issue to be resolved in the coming year.

Subject rankings: The upward trend in the QS subject rankings seen in the Faculty last year continues, with Mineral and Mining Engineering being the highest ranked FEMS subject in 39th place.   Other FEMS subjects in the QS top 100 include: Computer Science & Information Systems, Biological Sciences, Chemistry, Geography, and Materials Science.

Two broad subject areas in FEMS are also ranked in the top 100 globally: Engineering & Technology in 88th place and Life Sciences & Medicine in 89th place.

Space: The quality of many spaces across the Faculty remains a great concern. In particular, the unsuitability of Goldsmith Hall is almost a ubiquitous feature in School/Programme reviews and student feedback.

Looking forward:

The big challenge for the years ahead is balance – maintaining our upward trends in student recruitment, the introduction of new courses and new capital projects while maintaining and enhancing our teaching, learning and research standards.

Our key challenges for the coming year are diversity in student recruitment, realising Athena Swan accreditation for all FEMS Schools, continuation of the E3 Building and Foundry projects, maintaining the Faculty on a sound financial footprint, working towards further improvement of FEMS subjects in the QS rankings, and the smooth incorporation of TEP principles into Sophister years of FEMS programmes.

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Professor Vinny Cahill
Dean of Faculty of Engineering, Mathematics and Science

2. QUALITY REPORT

2.1 School precis

All eight Heads of School provided a precis of the priorities, challenges and achievements affecting the Quality of teaching, learning and student experience in their respective Schools. These comments are presented below:

School of Biochemistry and Immunology

This has been a year of significant change in the School. In addition to the introduction of semesterisation at undergraduate level there has been a major commitment in putting together a new MSc in Immunotherapeutics and a new module for PhD students in core Biomedical research skills. These activities have placed a major burden on the School and the priority is now to deliver on these commitments for the coming 3-5 years rather than engage in further departures for which we do not have the resources. Critically, ours is one of the highest performing Schools in Trinity in research so trying to push our staff further in delivery and assessment of teaching is likely to be counterproductive. We are very fortunate in having administrative, technical and academic staff that are willing to take on additional roles to help the School deliver on its ambitious mission but this capacity is at its limit.

We are responsible for the management of 4 popular undergraduate courses (Biochemistry, Immunology, Molecular Medicine, and Neuroscience), significant Biochemistry teaching to Medical students, a large cohort of PhD students and from September 2019 for 2 MSc courses (Immunology, Immunotherapeutics). Managing the semesterisation of the JS and SS years for these courses put a major strain on our administrative capacities and will inform how we approach this in future years. It will be interesting to see the impact of semesterisation on student performance this year. Over a number of years, students had voiced a desire for the projects to be conducted over a single semester in the SS year and this was introduced in 2018/2019 which demonstrated our adaptability and willingness to act on student concerns. In terms of quality assurance our external examiners were very positive in terms of course content and delivery and we await with great interest how they view our current final year students given the changes in year structure in 2018/2019.

This has been a year of major change in our postgraduate teaching. The MSc in Immunology has been a great success for the School over a number of years and has consistently received very positive validation by our external examiners. The development of a new MSc in Immunotherapeutics is a significant departure for us in terms of the model where there is significant industry involvement in course delivery and particularly in the projects. Our aspiration is to marry the acknowledged excellence in Immunology teaching and research within the School with the booming biologics/biopharma sector in Ireland. We expect this course to equip graduates with a unique skill set to move into this sector where there are significant numbers of high quality jobs and where it is clear many of our undergraduates and postgraduates aspire to work. This has the potential to transform postgraduate education in the School and more broadly in College and we are very excited to get it off the ground in 2019/2020.

The introduction of the core biomedical research skills module is a major addition to PhD training in the school. We are fortunate to have outstanding core facilities within the School in biological imaging and staff in these areas (fully funded by the School and access charges) play a key role in delivery of the module. In addition to the great value in training/education across a number of key experimental platforms, this course brings our full PhD cohort in a specific year together, developing a group dynamic and giving PhD students additional peer support in a setting where some students can feel that this is a lonely endeavour. Mental health issues in PhD students are being recognised globally as an issue of concern so it will be a priority for college to offer greater supports and guidance for this group who give so much to the College in terms of our research standing and within teaching.

The quality report process is useful as a vehicle for self-reflection but doing this on an annual basis is somewhat excessive. When significant concerns are raised or new initiatives are put in place it takes 2-3 years to see the impact of changes.

School of Chemistry

The School is committed to the delivery of a world class education using modern best practice.

It listens to comments and suggestions made by student stakeholders and external examiners and acts on these if possible.

As stated last year, the School's ability to continue to deliver excellence will depend on the receipt of proper resources which have not been forthcoming in recent years. The School has invested significant resources from its reserves over the last number of years in enhancing the quality of the undergraduate education provision both with regard to practical classes and tutorial/small-group teaching. Postgraduate student demonstrators have been paid from School reserves to engage with students in laboratory classes and to enable the very successful Broad Curriculum programme that is run in the SF year. The direct input of postgraduate demonstrators in the laboratory sessions results in an enhanced undergraduate student experience and fulfils the School's legal requirement to provide adequate supervision in a lab environment. However the Schools reserves have now been severely depleted and the funding of this existing activity will become increasingly problematic.

The ability of the School to drastically increase its undergraduate student numbers and to develop new taught Masters programmes is limited by the available resources. The School has engaged with the School of Physics and Natural Science in delivering the new M.Sc. in Energy Science to the first cohort of admitted students, and plans are well developed to avail of the opportunities afforded by the TEP to develop a new sub-stream within TR061 Chemical Sciences that will focus on the new and exciting area of chemistry with biomedical science. This proposal is ready to progress to the USC.

The School continues to evaluate alternative means of undergraduate module assessment to better align with the changes being brought in by TEP. Examples include the possibility of evaluating supplemental examinations solely by MCQ, and by using viva voce examination for some modules at Sophister level. The School has prepared an exciting new Trinity

Elective based on the Periodic Table and is very pleased to be in a position to contribute directly to TEP electives from their inception.

School of Computer Science and Statistics

The School successfully restructured into five new disciplines in 2018: Software and Systems; Statistics and Information Systems; Graphics and Vision; Artificial Intelligence; and Networks and Distributed Systems. This restructuring has already had a positive impact on quality processes: as the new disciplines consist of groups of academics with cognate interests, discussions regarding module design, delivery and quality assessment have taken place and changes and enhancements to our courses have been made. These groups also take "ownership" of a suite of modules in their areas of expertise and considerable discussion about curricula have taken place. Changes to the internal committee membership have also been put in place, ensuring that representatives from each of these disciplines are fully involved in the UG and PG committee discussions.

The School has appointed an Associate Director for Undergraduate Studies with particular responsibility for quality and best academic practice. This Director has already rolled out a system for student feedback on a course and per-module basis (for 2018/19) and follow-up meetings are taking place with the students.

The School has also participated fully in the Trinity Education Project and the development of ideas for the E3 initiative. This has involved a root and branch review of all our courses and modules and has given rise to much reflection on, and plans for, quality enhancements.

One of the main challenges for the School is to balance the increase in student numbers while maintaining quality. A particular focus is on how to handle the large increase in non-EU students on the M.Sc. in Computer Science, and one area of concern is the lack of geographical diversity in the student body. Discussions are ongoing with the Faculty Dean and others on how best to handle this particular issue.

School of Engineering

The School ensures fast responses to student complaints with excellent student representative and Student Liaison Committee involvement. The School has been proactive as a Phase 1 TEP School, with early 4th year piloting of TEP leading to full implementation this year.

A streamlined system of Court of Examiners Boards has been introduced with a move towards paperless Exam Boards being piloted for the Semester 2 (annuals) Court of Examiner meetings in 2019. This will lead to more secure and definitive record keeping, better aligning with GDPR regulations (in addition to sustainability considerations).

The School continues to engage in https://cluster.org/ (Consortium Linking Universities of Science and Technology for Education and Research) which has a strong technical education focus.

Further links to high ranking universities are underway, partnerships which will lift the quality of strongly   increasing international   student   numbers.   Current   partnerships under   development/consolidation include the following:

- Manipal University, India
- UM-SJTU Joint Institute (JI) University of Michigan - Shanghai Jiao Tong University
- INSA Lyon
- Plus new initiative in energy with the University of Melbourne, 1 plus 1 Masters level
- In addition, quality is under continuous focus with Thapar University incoming 2 plus 2 students

The School is participating in the delivery of increasing international activity, and as part of GRS3, a new School Global Director, Prof Brian Broderick has been appointed, with new Global Officer, Dr Kate Smith, also in place.

At MSc level, the Engineering by Module programme had been replaced by two new focussed masters; the MSc in Mechanical Engineering and the MSc in Electronic Information Engineering, with both courses showing high demand from high quality local and international students.

Finally a new undergraduate stream is under consideration with an E3 Sustainability focus in conjunction with the School of Natural Science.

School of Genetics and Microbiology

The School continues to provide high quality undergraduate teaching and our students compete well for excellent placements post graduation. The tuition is research-led with students encountering knowledge at the leading edges of the disciplines and the research project remains a highlight of their experience. The latter poses a perpetual problem as these cost ca. €3,000 per annum, a cost which is absorbed by research funding. This is a particular problem for those staff without research funding - and there is something of an imbalance between the School Disciplines in the balance of grant awards.

There are several challenges ahead which are being met.

First, we are developing, jointly with the School of Medicine, a taught MSc in Genomic Medicine. This is planned, is passing through College processes and should start in September. Providing high quality projects for this course will be a major challenge and these may be supported by spare income that emerges from this initiative.

Second, curriculum changes from TEP are working their way through the College year structure. I see this as a valuable opportunity to reassess our teaching process which is underway.

Third, we must begin to prepare for a School review. I accord with the previous Head of School in his assessment of risks. In particular the need for substantial grant income in the Life Sciences in order to pursue research is a bar that may not be met by all academic staff members. This has potential to create different types of career within the School and different

prospects for advancement. One challenge is to implement an effective workload model that gives all the chance to develop in a fair manner. In this and other matters, I look forward to input from an external review.

School of Natural Sciences

I welcome this Quality Report and note that the assessment of both the Undergraduate and Postgraduate programmes in the School of Natural Sciences are very positive, and attest to my colleagues working to provide the highest standards with regard to teaching delivery but importantly to student feedback.

All but one of the External Reports have been received. Issues documented in these reports are raised at relevant staff teaching committees. Our staff take the findings and recommendations seriously and act on these making the programmes stronger and student-staff interaction better.

Members of the School are heavily involved in new pedagogic initiatives in College, particularly with regard to TEP, the development and implementation of Trinity Electives, and through enhancing cross-disciplinary linkages with the other E3 Schools. However, given the recent changes to the Science intake scheme, and all of these new initiatives it can be difficult to ensure that all of these complement each other.

School of Mathematics

There is little change from last year in most areas.

The Theoretical Physics moderatorship was recently reviewed by the Institute of Physics. The School of Physics had primary responsibility for that process, but we cooperated fully with them and have recently received the accreditation report. We agree with most of the recommendations of that report. We are attempting to address the ones which can be dealt with internally, but some reflect College structures and policies. The reviewers were concerned that the tutorial system mixes pastoral care and academic advising, to the disadvantage of the latter. They were also unhappy with the fact that supplemental exam marks are not capped.

We have started the Athena SWAN process, but are still in the early stages.

We are starting to see our first TEP-related issues, but most of those are probably still to come. There were problems both with the timetabling and administration of exams last term which generated a fair degree of unhappiness among the students. We can only hope that these resulted from the newness of Christmas exams and will not recur in future years. Our primary worry for the future is the timetabling of modules and the constraints this and other TEP-related changes may impose on student choice. Our Mathematics moderatorship in particular was notable for the high degree of student choice in the third and fourth years. These students and the Joint Honours students will have less choice in future years. So far concerns have been expressed mainly by the student representatives on course committees, since current students have yet to be affected.

School of Physics

Like in many other Schools, the pressure of relentlessly increasing workload without a commensurate increase in resources has posed challenges for the School of Physics. In 2017/18 a large amount of extra work (e.g. TEP, GDPR, Athena Swan related tasks) at a time of increasing number of students without extra staff has resulted in a few things being missed/omitted. However, I must compliment our staff who have performed excellently under sometimes extreme pressure.

I am, however, concerned with the sustainability of this effort as, in the current year (2018/19) the workload is still increasing. I believe that this poses a real risk to quality in the future. This was noted independently at the recent IoP visit by the accreditation team

Excellent recruitment efforts for the new TR063 and PGT course in Energy Science have resulted in attracting a good quality of students to our courses while achieving our target numbers.

We look forward to the first students in our '2+2' degree programme with UBST, Beijing in 2019/20. I note that we do need to monitor carefully the quality of non-EU students and there are some initial indications (from assessment results) that some non-EU students are having difficulties.

2.2 Quality of Undergraduate Programme Provision

The quality assurance procedures in place at undergraduate level resulted in a modular evaluation rate of 99.3%. Of the 566 UG modules across FEMS, all but 4 were evaluated. With plans in place to ensure all are evaluated next year, the Faculty is happy with level of UG module evaluation.

Data gathering and assessment methods remain largely the same as in previous years.

There remains widespread support towards replacing modular with programme evaluations – this would have the double benefit of significantly reducing the administrative burden, and would enable any programme-level or intra-module deficiencies to be identified.

All Schools in the Faulty have made significant strides towards achieving the College requirement of providing timely feedback on assessments to student within the Council-prescribed 20 day limit.   On those rare occurrences where this was not possible, a justification was provided. Schools use a variety of methods to provide feedback, with staff-student liaison committees and email campaigns proving most effective.

Progression rates across the Faculty averaged 85%, which falls below the College target (90%) and is the lowest of the three Faculties. Several courses with progression below 90% (Medicinal Chemistry, Chemistry with Molecular Modelling, NPCAM, Earth Sciences, TR071 Science) are not accepting new entrants, having been amalgamated into the new four-stream science course entry from Sept 2018. One of the goals of the four stream Science entry was to align incoming Freshers within their area of interest. Next year's report will assess if this has aided progression rates.

The remaining courses with progression rates below 90% are:

Course	Progression rate (%)		
	15-16	16-17	17-18
Engineering	92	97	88
Computer Science and a Language	N/A	75	82
Mathematics	94	84	81
Theoretical Physics	69	75	71

The Faculty will further explore if there are any underlying reasons for the sub-optimal level of progression in these courses.

Retention in UG courses in the Faculty is high, and meets the College's Strategic Plan target of 90%. Where individual course retention falls below that level, it is in small-intake courses where one student retiring from a course can have a significant impact on the retention rate.

Summary of key points:

- 99.3% of undergraduate modules were evaluated in 2017-18.

- Feedback was provided on all evaluated modules.

- 97% of UG external examiners reports were returned for evaluations that took place during 2017-18.

- Schools across the Faculty employ a diverse range of methods to evaluate their undergraduate programmes, including surveys (online and paper), one-to-one interviews or group feedback sessions, feedback from class reps and course directors.

FEMS Directors of Undergraduate Teaching and Learning (DUTL) on UG issues:

School of Biochemistry and Immunology:
- Senior Sophister year 2018/19 major reorganisation.
  - Project completed in Semester 1 and weighting increased to 20 credits as per TEP
  - Core lectures reduced to 3 x 10 credit modules
  - End of year exam paper assessments reduced from 4 papers to 3
- Evaluations:
  - Mid-module evaluations introduced in for both semesters in academic year 2018/19.
  - Meetings with DUTL and course co-ordinators
- Requirement for return of coursework within 20 days.
  - Yes. In those few cases where this was not possible students were notified.
- Implementation of TEP.
  - All exams semesterised, Capstone project weighting increased even though several external examiners have expressed concerns over increased weighting to research project.
- Use of the 'clicker' or 'app' technology.
  - Ongoing application of clicker and other technology to lectures and practicals.
  - Introduction of a practical laboratory exam in Semester 1.

School of Chemistry:

Over 2017-18 the School restructured all assessments across years 1-4 to fall within the new regulations for the academic year structure. The process involved implementation of a TEP-workgroup that examined and developed proposals for addressing the changes. The approved proposals were then taken to the entire Academic Staff for feedback and modifications and were finally approved by the T&L Committee and Executive Committee. The consultation process was satisfactory despite the difficulties arising from the very tight deadlines between publication of new regulations and implementation date. Further activities of the TEP Workgroup involve the curriculum development for the new TR061 degree programme, which is being managed in parallel to the changes to legacy years of TR071 and TR074-76.

The Student Liaison Committees appear to work well as a system for obtaining and providing feedback. Considerable unease was noted among students arising from the multiple changes in regulations and modules midway through their degree. The SLC and T&L Committees offered a good venue for articulating to students the rationale for the many changes and how some of the implementation choices were adopted to mitigate any potential problems. The format to the SLCs was revised in 2017-18 arising from experience during the first round of the SLC implementation. As a result, the ToRs for the SLC were changed to include a section on adherence to College Policy on Dignity and Respect, Equality and LEAD training. The new ToRs are available upon request.

School of Computer Science and Statistics:

The School has appointed an Associate Director of Undergraduate Teaching and Learning with responsibility for Quality and Academic Practice.

Beginning in Michaelmas Term 2018, the School is conducting module-level surveys of all undergraduate modules, in addition to continuing programme-level surveys.

The School has approved revised curricula in all programmes in order to implement the TEP Common Curriculum Architecture. As part of the process, a Single Honors Professional Computer Science Curriculum and a Joint Honors (Two Subject) Computer Science curriculum have been developed for new entrants in September 2019. The Joint Honors curriculum will facilitate future subject combinations with Computer Science. The School is involved in a number of Trinity Elective modules and is the lead School in two of these. The School has also opened 35 modules to be taken as Approved Modules. We continue to engage with TEP in other areas including fixed timetabling, workload and assessment.

In 2018/2019, the School revised its undergraduate governance structures, approving new membership and terms of reference for course committees and for the School's Undergraduate Teaching and Learning Committee.

In the 2018 School ISSE report, SCSS achieves index scores broadly in line with the rest of the institution. The School performs above the institutional total in Quantitative Reasoning, Collaborative Learning, Effective Teaching and Supportive Environment. The School faces similar challenges to the institution as a whole, particularly in relation to Student-Faculty Interaction.

The School performed above the institutional average in non-index survey results for questions related to communication, teamwork, problem-solving, workplace relevance and the School's long-running capstone project.

Finally, the School is actively engaged in E3, including, in particular, the design of the E3 Learning Foundry which will significantly enhance the educational experience of our students.

School of Engineering

In 2017/18 the School saw new external examiners in (i) Civil Engineering, (ii) Mechanical Engineering and (iii) Computer Engineering; such a large changeover represented both a challenge and an opportunity for the School. The handover ran very smoothly, with the new examiners proving a benefit to the programmes.

The School of Engineering is one of the first Schools in the University to implement the Trinity Education Project (TEP) in 2018/19. This was viewed from the outset as both a challenge and an opportunity. As a School we worked closely with the Senior Lecturer and the TEP implementation group to ensure that TEP has enhanced the quality of the programmes which we offer. In 2018/19 we have successfully implemented aspects of TEP related to (i) assessment, (ii) module sizes, (iii) progression rules, (iv) calculation of award and (v) programme architecture.

In 2019/20 we will see the first cohort of engineering students take Trinity Electives, and we are in close collaboration with the SL and the TEP PM in this regard. It is also noted that the School of Engineering was successful in having two Trinity Electives proposed by the School being selected by the TE Implementation Group.

School of Genetics and Microbiology

Work in the UG teaching area during academic year 2017/2018 was mostly directed towards ensuring that our programmes are fully TEP compliant and that we can make a substantial contribution to the new TR060 Biological and Biomedical Science course curriculum. We have also entered the planning phase for revising the Senior Sophister curricula of the three moderatorships offered by our School. This work has been time-consuming and has left little room for other activities in the UG teaching area. However, both student feedback and assessments by the external examiners are very positive overall and no substantial improvements to our UG programmes are currently required.

I can confirm that the School is meeting the requirement for the return of coursework and feedback within 20 business days.

The School's performance on ISSE indices is on par with or exceeds the College average. We are especially pleased with the high ratings we received for staff-student interactions.

School of Mathematics

2017-18 was a very tough year from the UG teaching point of view. The School of Mathematics is heavily under-staffed. However, we managed to deliver a set of modules of good quality, as witnessed both by student evaluations and by the external examiner reports.

We have a functional system of mid-module evaluations for all modules. Those are done automatically by a computer program, and results are made available to individual lecturers promptly. Most of coursework is returned within 20 working days, and in exceptional cases (large classes, resource implications) there is effort to minimise the delays to the largest extent.

I analysed the ISSE report. It is very difficult to say what the indices really represent, with the target group of 22 students and the parameters formulated in such a way that the interpretation is at best ambiguous. I intend to further liaise with the School Convenor to address the specifics. However, one objectively worrying parameter is Student-Faculty interaction. Currently, most of such interaction happens through the activities of the Maths Society. We shall aim to expand the social activities which are important for a healthy academic climate.

The implementation of TEP has been extremely hard on our School. My predecessors in the DUTL function attempted to explain to the SL, TEP, and TT&L that our approach to teaching is not a whimsical invention of School of Mathematics but rather corresponds to international standards of teaching mathematics at good universities. In particular, Prof. David Wilkins, following his email laying out a very clear explanation of our pedagogy (email to the SL, TEP manager, TT&L on May 4, 2016) undertook a very serious study of mathematics teaching and assessment around the world which he disseminated to the relevant parties on May 9, 2016. To the best of my knowledge, this information was never taken seriously. For instance, during 2017/18, I was suggested to have meetings with TT&L in order to get informed about "new trends in teaching mathematics". In those meetings, I was told about assessment methods (peer assessment, self-assessment) which were definitively proved unhelpful for mathematics after several years of state-wide trials by Soviet educators in 1930s, and was given a research paper in pedagogy which discussed "alternative approaches to assessment in mathematics" which is written by three academics from institutions that do not teach pure mathematics (including one institution which closed its mathematics department since the paper in question was published); this sends a very odd message to us. In general, while not denying advantage of the new architecture for some subjects, particularly for Arts and Humanities, I strongly believe that the "one-fits-all" approach to teaching and assessing different subjects is highly damaging to a world-class university which Trinity (I hope) aspires to be. A university of this standing should be capable of acknowledging the importance of a world class mathematics department in its portfolio, and not regard our School as a half-forgotten stepchild which has been the status quo for quite a while now.

I would also like to remark that in the last couple of years I witnessed a tremendous decline in quality of operations of the HR and various components of the Academic Registry. I personally believe that this is happening due to the recent change in the HR approach to admin staff,

where there is an unambiguous push for rotation of admin staff between various College offices. This leads to a huge loss of institutional knowledge: it is a big mistake to assume that a person who is an excellent finance office employee would make an excellent executive officer of an individual School, to give an example. This approach is especially damaging now during the implementation of TEP which is extremely strenuous on all people working for Trinity.

Clickers and apps are not currently used in our operations.

School of Natural Sciences

2017/18 saw a major development for the School of Natural Science with the roll out of the new TR060 (Biology) and TR062 (Geography Geoscience) Science entry routes. These new programmes were the fruit of many years of work both within the School of Natural Science and through the Undergraduate Science Education Working Group and its antecedents. These new programmes have resulted from a fundamental review of curricula, structures and assessment methods. Entry through the new routes will lead to moderatorships in Geography, Geoscience, Botany, Zoology and Environmental Science.

Much work has also gone into preparing Geography for the new Joint Honours entry route. Restructuring in preparation for this initiative has led to the discontinuation of long-standing TSM combinations with Geography: Philosophy Psychology and Maths. However new and very promising combinations with French and Ancient history and Archaeology have opened up. Planning for the implementation for the new programme architecture has been incorporated into our ongoing process of curriculum review and development. The direct entry Geography/Politics programme will also follow the new architecture.

Across the School, through the Undergraduate Teaching and Learning Committee and the various moderatorship committees, work has proceeded on implementing the requirements of TEP.

Two Trinity Electives will be based in the School: Irish Landscapes: multi-disciplinary perspectives (Mark Hennessy) and Toolkit for a Sustainable World (Yvonne Buckley).

The School is also involved in developing innovative undergraduate programmes as part of the E3 project. For example a Joint Honours Geography and Computer Science Moderatorship is at an early stage of development. The pedagogic potential of the E3 Learning Foundry building is also being incorporated into planning for Teaching and Learning in the School.

The School of Natural Science is engaged in a process of developing a joint degree programme with Columbia University. At present degree programmes in Earth Science, Sustainable Development and Environmental Science are envisaged. This initiative has huge potential for the School.

It is difficult to assess the representativeness of the ISSE report with regard to Undergraduate Teaching and Learning in the School due to the low numbers of respondents and also the concentration of these respondents in a small number of programmes. Also the Y1 cohort are from TR071 Science and it is therefore not clear if all of their comments refer to NS subjects or

subjects in other Schools. Nonetheless a number of key points do emerge and will be addressed through the UGTL committee and course committees.

1. Small group teaching. It is clear that there is a strong demand for more small group teaching at all UG levels. Addressing this will be difficult due to the lack of availability of PG tutors/demonstrators and the cutting back of non-pay budgets.

2. Despite many efforts there is still clearly a problem with consistency and quality of feedback on CA work. The DUTL in NS will continue to highlight this issue and to push for a consistent and satisfactory approach across the School.

3. Fieldwork. The continuation of field teaching as a core element of the UG offerings of the School.

The School has not initiated a Staff-Student Liaison Committee. The subjects in NS are quite diverse and more local staff-student committees are more appropriate.

The 20-day rule is being applied and where departed from students have been contacted.

School of Physics

The School has had a challenging but successful year in 2017/18. A large amount of activity was devoted to work on the planned changeover to TEP, and the introduction of the new Science streams for 2018/19. We planned and agreed module structures for all years of all our degrees. In 2017/18 we began this work to allow us, as well as improving breadth and meeting the other goals of TEP, to produce a more coherent and appropriate structure for our core modules. This involves foundation material being delivered in compulsory core modules as early as possible, to make way for advanced work on the same topics in core optional modules later. Note that we deferred, with agreement of the Institute of Physics, our professional (re)accreditation application to 2018/19 so that it could be based on the new course structures, allowing us to ensure it meets the professional body requirements, and enabling our TEP redesign to be informed by best practice in our discipline

We were, of course, concerned about how the introduction of the new Physical Sciences stream might impact on student recruitment. We therefore took several initiatives during 2017/18, around open days and outreach, including both the College Open Day and the Maths-Physics Open Day. We made some enhancements in both, including scheduling research talks and moved the information stands for Physical Sciences (and our other courses) to the Fitzgerald Building for the College Open Day. These change proved to be very successful.

The new streams proved popular at CAO and allowed us to recruit to quota while maintaining a good entry points requirement. We are delighted with the result and think it speaks both to the level of interest in Physical Sciences and the effort of the School's staff and others around recruitment.

The School has term staff:student liaison committees instituted by the previous Director of Teaching, who had also planned to introduce mid-module feedback. However due to excessive

workload in the School related to the transition to TEP, and the lack of additional resources associated with this, it was not possible to hold the liaison committees in a timely fashion, nor to seek mid-module feedback at both committee meetings were held at the end of the year (one for Freshers and one for Sophisters) and although this was a useful forum – not least because it assured us that our students were, in general, happy with the School and the course – it should have been held earlier. However, such activities will prove even more difficult to organise in 2018/19, given the compression of the academic year.

As noted above the School did not meet the requirement for return of coursework across all modules in 2017/18 but have put actions in place and we believe this has now been resolved.

2.3 Quality of Postgraduate Programme Provision

Of the 19 Postgraduate Taught (PGT) programmes eligible for evaluation across the Faculty in 2017/18, 18 were subject to formal programme student evaluation.

The Faculty will work with the School of Mathematics to explore evaluation methods for the High Performance Computing course, to ensure it is subject to formal evaluation in future years.

Methods used for evaluations, feedback to students and so on, are broadly similar to those reported for UG courses.

There was a disappointing return of only 76% of PGT External Examiner Reports for FEMS programmes. This overall rate is due to a poor 54% return rate in the School of Engineering. Course Directors in the School are liaising with the externs to hasten the return of the reports.

FEMS Directors of Postgraduate Teaching and Learning (DPGTL) on PGT/PGR issues:

School of Biochemistry and Immunology:

The School of Biochemistry and Immunology currently has 77 registered PhD students, 19 registered MSc students on our MSc in Immunology and will have a new MSc in Immunotherapeutics beginning in 2019/20 with a projected intake of 10 students in the first year.

Key achievements for the 2018/19 academic year for our School include:

1. The development of a new MSc in Immunotherapeutics, which is awaiting Council approval and will begin recruiting students for the 2019/20 academic year. This is an extremely exciting venture for our School as this MSc represents the first MSc of its kind in the country that will capitalise on Trinity's reputation in the field of Immunology while providing students with applied training in collaboration with the pharmaceutical industry. Immunology has revolutionized the treatment of autoimmune, inflammatory and malignant disease, and Trinity researchers have been major contributors to this success. Several of the world's biggest pharmaceutical companies in this sector are based in Ireland and are in constant search for appropriately educated graduates. The proposed MSc in Immunotherapeutics aims to harness Trinity's expertise in the field and produce graduates appropriately trained for this sector. This proposed new stand-alone MSc programme was developed in consultation with the biopharma industry in Ireland and is the only national postgraduate degree dedicated to immunotherapeutics.

2. The introduction of a new taught module for PhD students in Core Biomedical Research Skills. This module will provide training in core research skills that are required to pursue a PhD by research in a biomedical field. This new module will provide students with hands-on training in tissue culture, a basic technique underpinning the majority of biomedical research, in addition to more advanced technologies such as flow cytometry, confocal microscopy and electron microscopy. These technologies are all areas of significant strength within the School of Biochemistry and Immunology and so students will have the opportunity to directly benefit from in-house expertise. In addition, through participation in the Biochemical Research Seminar Series students will have an opportunity to broaden their research knowledge and appreciation of the discipline and will have the opportunity to interact with world-renowned expert speakers from the fields of biochemistry and immunology, thus promoting their communication skills.

A key focus for the year ahead will be to successfully implement our new MSc in Immunotherapeutics while continuing the success of our current MSc in Immunology. In addition we will continue to improve reporting procedures within the structured PhD to enhance the PhD experience for all our registered PhD students

While not yet required to do so, the School decided to proceed with making a number of administrative changes to its suite of postgraduate modules in order to make them TEP compliant. This included a review of how each module was assessed, clearly identifying the semester of delivery and examination, and generating a tailored 8 digit code for each module.

One of the key problems that arose for our students in the ISSE survey for PGR students was a lack of space. PhD students do not have a suitable space to congregate and do not have designated break out spaces to have lunch. This is an ongoing problem in TBSI and is part of a more complex issue regarding space allocation in this building which is beyond the School's capacity to solve.

A key message coming from the ISSE is that students felt ill-informed as to the requirements for undertaking a PhD in the School i.e. requirements for taught credits, progress reporting, identification of relevant individuals to which to report issues. We have resolved this by introducing an introductory lecture at the start of our new taught module in Core Biomedical Research Skills which is taken by all first year students. At this introductory lecture they meet with the DPGTL, the HoS and the Safety Officer. The DPGTL goes through all the requirements for completing a PhD in the School. In addition a new PhD handbook has been developed and is available on the School's website. This handbook clearly outlines the services available to students and indicates the channels of reporting that should be pursued in case of conflict.
All course work is returned to our PGT students within 30 days.

School of Chemistry:

During 2017/18, in conjunction with the Schools of Physics and Natural Sciences, the School was involved in developing the structure and content for a new MSc in Energy Science programme

for delivery in 2018/19.

PG students indicated to the School reviewers that they wanted additional opportunities to present their research. Following on from the first instance in September 2016, the Postgraduate Research Day has been embedded as a full-day programme with talks and a social element that acts as an introduction to the School for the newer postgrads and an opportunity to present their work for more advanced postgrads.

Plans were put in place in 2017/18 to recruit to the new PGT MSc in Energy Sciences programme. Feedback from the first cohort of students will feed into future developments within the course.

Implementation of TEP has no impact on Postgraduate programmes at this time. A stricter timetable for the submission and examining of transfer/confirmation reports has been put in place for all second year postgraduates, leading to students having a clearer idea of the way forward/areas for improvement

The challenges around the Dubchem collaboration with UCD – narrowness and suitability of the course offerings, level of buy-in from staff, limited effectiveness of the DubChem Executive, logistics of participation and issues concerning module records – have collectively necessitated a review of the PG course offering that underpin our structured PhD. A student survey was undertaken and following upcoming meetings with academic staff new PG course requirements for the PhD will be agreed. The goal is to incorporate the new CA7000 module and, in particular, the Research Integrity module that is now a requirement for SFI funded researchers, together with the range of transferable skill modules that have been developed at College level. The question of maintaining links with UCD (or indeed other universities) has yet to be decided.

School of Computer Science and Statistics:

A key achievement in this period has been the successful launch of our new MSc in Computer Science programme. This high demand course has received (and continues to receive) a significant number of applications. One issue has been to instrument a scalable approach to assessing applications. This has been implemented and is currently being used.

It is the first year of our new MSc in Computer Science and return of feedback varies across this large programme. Going forward, we will put in place more measures for coordinating CW deadlines across modules in the programme and tracking dates when feedback is returned. Concurrently to changes in undergraduate courses due to TEP, we have implemented publication of provisional results for Semester 1 modules for all our PGT programmes from 2018-19.

School of Engineering

The PG taught programmes in the School of Engineering are being continually modified and appropriately targeted to cater for the academic and market needs. With the new E3 Developments, we are exploring joint programmes across some of the relevant Schools (Engineering, Natural Sciences and Computer Science). This would involve students taking some

shared modules. For example, our School is already offering a module on 'Wind Energy' (5 ECTS) to the MSc in Energy Science programme to the School of Physics. More initiatives like this are expected in 2019-20.

We already have healthy numbers in our MSc programmes, particularly in Civil and Mechanical Engineering, where we have experienced a significant growth with interests from non-EU candidates.

Increasing numbers in our MSc programs has been limited by administrative, laboratory and supervisory capacity. If we are provided with additional resources, the School could start new MSc programmes and increase the intake number in the existing programmes.

The School is also forming a Doctoral Committee (which has been approved by the School Executive Committee) to consider formation of individual Doctoral committee for PhD researchers.

The School will also consider developing some level 10 doctoral level modules in 2019-20.

School of Genetics and Microbiology

The very high standards of PG student supervision is reflected in the fact that the School continues to publish many papers in international journals of very high calibre and impact. The School also continues to recruit PG students who have secured their own funding through the Irish Research Council (IRC) PhD student program. In turn, the high calibre of these students has allowed research projects to develop and has attracted further funding into the School via national and international funding bodies.

PG students continue to contribute to teaching undergraduate students in their capacity as demonstrators during practical classes. Additionally, PG students are essential for the day-to-day activities of final year "capstone" research projects. These projects receive no financial contribution from College and students receive no remuneration for their time which is often extensive. The time committed by PG students also takes away from time spent on their own projects. This will need to be addressed going forward as it is a chronic complaint and the situation is not sustainable in its current form. As these projects are a fundamental feature of TEP, at the very least, funds should be provided for these 10-week projects.

The School is in the process of establishing a taught Masters course in Genomic Medicine and this is due to launch in 2019/2020. It is a joint initiative with the School of Medicine.

The School is currently meeting the requirements for all credit bearing courses that need to be completed by PG students.

School of Mathematics

TEP implementation is proceeding on schedule. Coursework is returned within 30 days.

School of Natural Sciences

Excellent performance of students in Biodiversity MSC: 8 Distinctions out of a class of 17.

Some aspects of TEP have been incorporated and will continue to be implemented. This is not undertaken at School level, but through individual supervisors.

Too few participants in the ISSE report to be meaningful in any real sense. Individual disciplines have taken on board specific actionable comments and find the survey has offered some insight into how we can improve our program.

Several students have identified cost of living relative to the stipend as a problem – informally we have also experienced students not taking up places due to cost of living worries. This is a critical problem.

One student cites research infrastructure as a problem. We are working on upgrading our research infrastructure.

Several students cite administrative burden as a key problem – particularly understanding how to register, communication with central administration and payment of stipend in a timely manner. We could do better as a College in effectively managing PhD student registrations and at the Discipline level in communicating expectations and processes better to students.

The School is meeting the requirement for return of coursework within 30 days.

School of Physics

The development and launch of a new PGT course in Energy Science run by the School of Physics (in conjunction with the Schools of Chemistry and Natural Sciences) was carried out. The course coordinator and the School Global Relations Officer put significant effort into student recruitment for the new course.

The School has submitted 3 applications for different Doctoral Training Centres (DTC) announced by Science Foundation Ireland. The School has been awarded one (together with the School of Chemistry) with another one pending. The awarded DTC will support 25 new PhD students shared between the two Schools.

A total of 30 PhD students were recruited in to start in 2018, which is an excellent number. This suggests that the trend of declining PGR numbers seen a decade ago or so has been reversed.

2.4 Update on issues outlined in previous years Annual Faculty Quality Report

- As per previous years, by far the most common issue raised by students in a number of Schools is the sub-optimal quality of many of the teaching and learning spaces used by Schools within the Faculty. This includes particularly the Goldsmith Hall, which is unsuitable for lectures. Where possible Schools try to accommodate classes in appropriate spaces, but some classrooms are simply too small for increasingly large class sizes. Of particular concern is the lack of growth space for Schools, especially when trying to recruit senior, world-ranked academics.

  - Status: ongoing

  - The Faculty has pro-actively engaged with the Bursar and the Estates Strategy, and this will continue in the coming years.

  - The Dean continues to discuss the reimaging of the Hamilton Library with the Librarian, with the aim of providing students with 24hr access to the area.

  - The sample student pods in the East End of the Hamilton have been welcomed by students, but these remain the exception as opposed to the rule.

  - The Faculty commissioned a review of Goldsmith Hall, and ia awaiting an update from the architects.

  - Despite these small wins, the availability of high-quality space, and in particular the condition of teaching/student spaces, continues to be an issue across the Faculty.

  - The proposed E3 Building, and the associated refurbishment of ancillary space, will address some of the Faculty's space concerns, but short-term solutions will be required in the interim.

  - When space requests cannot be accommodated within a School, the delay between requesting and assigning of space can be considerable. The Faculty will engage with the review of the Space Allocation Policy in the coming year, with the aim of streamlining this process.

  - The provision of suitable breastfeeding spaces within the Faculty footprint has yet to be realised.

- The Faculty would be in favour of amending the current timeframe for the collation and presentation of the Faculty Quality Report to the Quality Committee. For an optimal report, the background surveys and reviews should all correspond to the same academic year. This would allow School responses to be consistent across years and therefore comparable for cross-referencing. This is particularly noticeable in the case for the ISSE report (this report is based on the 2015-16 ISSE, as by the time the 2016-17 ISSE received approval from the Quality Committee FEMS Schools had already complete their response templates. Information from 24 months ago is out of date). FEMS would ask that the

Quality Committee re-evaluate the timings of both the background and the Faculty reports.

- – Status: Complete

- The Faculty would like to see a coherent approach to student recruitment and marketing, relevant across all cohorts (Irish, EU and NEU), that would reduce duplication of effort, eliminate non-consistent reporting of student numbers and increase cross-selling of offerings.

- – Status: ongoing

- – The Faculty continues to work with the Global Relations Office, and other stakeholders, to coordinate student recruitment and marketing.

- – The visibility of non-Irish EU recruitment in FEMS remains low. The Faculty are working with AR on the establishment of new reporting formats that would include geographical location of prospective and current.

- The coordination of the undergraduate science websites remains an issue, and may be considered a barrier to the recruitment of NEU students in particular. This is a key issue to be resolved in the coming year and will necessitate input from outside the Faculty.

- – Status: ongoing

- – The upgrade of the individual School and the Science programme websites continues.

- – Consistency and interdependencies between Schools remains an issue.

- The issue of student diversity has the potential to become a significant challenge for FEMS Schools. The Faculty would welcome College-wide initiatives to track diversity at the application stage, and proactive initiatives to expand recruitment into under-represented countries.

- – Student diversity remains a primary concern for the Faculty. A College-wide initiative to promote diversity remains to be realised.

2.5 Faculty Projects / Initiatives

The following will be priorities for the Faculty in the coming years:

- Incorporating TEP principals into Sophister years, including the potential for incorporating work placement options

- Encouraging student mobility

- Further enhance the financial stability of the Faculty, to include the expansion of course and programme offerings (including online, CPD and new courses), leveraging the opportunities afforded though the philanthropic Campaign for Trinity, partnering with industry, etc.;

- Submit four new Athena SWAN applications, aiming for Bronze awards.

- Maintain the Athena SWAN initiative at Schools already accredited

- Contribute to a Faculty-wide baseline space audit, to include a comprehensive assessment of function, condition and utilisation;

- Continue to drive forward the E3 project;

- Continue to works towards integration of the science Schools' websites, to maximise marketing and recruitment;

2.6 Summary of issues to be escalated to College Level

All issues within their remit raised were dealt with at School or Faculty level.

Faculty-wide issues for escalation:

- As per last year, the most common issue raised by students and Schools is the sub-optimal quality of many of the teaching and learning spaces used by Schools within the Faculty. The Faculty would welcome significant refurbishment of the Hamilton Building and Goldsmith Hall, similar to that enjoyed by the Arts block in 2018. The lack of growth space for Schools, especially when trying to recruit senior, world-ranked academics, has become even more acute in the last year. FEMS would welcome a more robust, efficient and flexible College-wide approach to research space.

- Student diversity on FEMS courses and programmes remains a big challenge for the Faculty. Reiterating from last year's report, the Faculty would welcome College-wide initiatives to expand recruitment into under-represented countries.

- The recruitment of students (across all cohorts) is severely hampered by the lack of affordable student accommodation. While welcoming opening of Oisin House, the Faculty does not see this as alleviating the student accommodation crisis in any significant way and would support further investment in this area.

- The prohibition on recruiting administrative staff into new posts on fulltime contracts in Faculties and Schools is hampering the recruitment and retention of high-quality, professional staff. As recruitment in central College is not subject to this caveat, the Faculty would like to see a level playing field re-established.

3. APPENDICES - FACULTY AT A GLANCE

3.1 FEMS UG Module Evaluations

Across the Faculty, the quality assurance procedures in place at undergraduate level resulted in a modular evaluation rate of 99.3%.

School	Undergraduate			
	No.	Evaluated	Modular feedback provided	Response rate
School of Biochemistry and Immunology	58	58	Yes, in variety of ways	Level of feedback varies, as does attendance at end of term class meetings. Range from 100% to 20% where data available. Typically for paper surveys ~ 50% Attendance at feedback sessions high ~ 70%
School of Chemistry	45	45	Yes	N/A as evaluation and feedback is carried out via liaison committees
School of Computer Science and Statistics	110	110	N/A	2017-18 represented the last year of programme evaluation
School of Engineering	131	131	All	Good
School of Genetics & Microbiology	30	30	All, via JS and SS co-ordinators	Vary, averaging approx. 90%
School of Mathematics	57	57		44-53%
School of Natural Sciences	84	83	All, via email	Close to 100%
School of Physics	51	48	All, via staff-student liaison committees	70%
Total	**566**	**562**	**Variable**	**Variable**

Non-assessed modules:

School of Natural Sciences: Module GG2023 has a lot of small group student interaction and feedback. It is team taught. Lack of communication between module coordinator and module tutor resulted in a formal evaluation not being conducted. DUTL and Module Coordinator will ensure that this does not occur again.

School of Physics: Three modules were not evaluated by survey: PY1E04, PY1P01, PY1H01. These are all non-core service teaching modules that were omitted in error. School Manager will ensure that they are surveyed in 2018/19.

3.2   FEMS PGT Course Evaluations

Of the 21 Postgraduate Taught (PGT) programmes run in the Faculty in 2017/18, 19 were eligible for formal programme student evaluation. Of these 19 programmes, 18 were evaluated (94.7% evaluation rate)

School	PGT			
	No.	Evaluated	Prog. feedback provided	Response rate
School of Biochemistry and Immunology	1	1	1	High
School of Computer Science and Statistics	3*	3	2**	Good
School of Engineering	11	11	Via student reps	Variable
School of Mathematics	1	0	N/A	N/A
School of Natural Sciences	3	3	All, via email	High
School of Chemistry	N/A	N/A	N/A	N/A
School of Genetics & Microbiology	N/A	N/A	N/A	N/A
School of Physics	N/A	N/A	N/A	N/A
Total	**19**	**18**	**N/A**	**Moderate**

Non-assessed programmes:

School of Mathematics: The High Performance Computing Programme is the only taught PG programme in the School of Mathematics. The School of Mathematics does not have the resources to run student evaluations for its PG modules. Normally, the course director would have the responsibility for overseeing the student evaluation process.

*To note in School of Computer Science and Statistics: As intake had been suspended on the MSc's in Management of Information Systems and Health Informatics, evaluations were not carried out on these programmes.

**To note in School of Computer Science and Statistics: The course survey for the PG-Cert in statistics was conducted after end of term when students had disbanded thus they did not receive formal feedback however feedback was provided to students for other programmes.

3.3 FEMS External Examiner Evaluations

For academic year 2017-18, 97% of UG and 76% of PGT External Examiner Reports were returned for FEMS programmes, which is on par with the return rate of the previous two years.

Non-returns in the School of Engineering: MSc in Engineering (Civil), MSc by Module, MPhil in Music and Media Technology, Diploma in Fire Safety Practice, Diploma in Sustainable Energy. In all cases there has been a delay receiving the reports from the external examiners. The Course Directors/administrators are following up with each extern.

Non-return in the School of Natural Sciences: Earth Science. The School has been in contact with the External Examiner to on a number of occasions and Earth Science are following this up following contact from the DUTL.

Cohort	No. of Reports	No. returned	% returned
Undergraduate	38	37	97.4%
Postgraduate Taught	21	16	76.2%

School	Undergraduate			Postgraduate Taught		
	No. of Reports	No. returned	% returned	No. of Reports	No. returned	% returned
School of Biochemistry and Immunology	4	4	100%	1	1	100%
School of Chemistry	6	6	100%	N/A	N/A	N/A
School of Computer Science and Statistics	6	6	100%	5	5	100%
School of Engineering	6	6	100%	11	6	54%
School of Genetics & Microbiology	3	3	100%	N/A	N/A	N/A
School of Mathematics	2	2	100%	1	1	100%
School of Natural Sciences	8	7	87%	3	3	100%
School of Physics	3	3	100%	N/A	N/A	N/A

3.4 Enhancements and repeat issues 2017-18

Selected School enhancements in 2017-18 (academic):

Issue (Academic)	Trigger/source for enhancement	Resolution/enhancement
School of Biochemistry and Immunology		
Clarity on what is required in Lab book inspections /assessment for JS Students	Student Feedback	A tutorial is given on day one of the new term to cover this specific item along with notes on BB
More sample MCQs for the in UG course assessments	Student Feedback	Additional sample MCQs now online
Inclusion of assessed posters as part of the overall project assessment in Senior Sophister year; Currently a formative exercise	External Examiner	Poster sessions will be assessed in 2019 and onwards. The poster session will contribute 5% to the overall project mark
Merging Parasite Immunology and Global Diseases modules	External Examiner	The Module Coordinators and the course Director are merging these modules, which will be presented for GS approval.
Ensuring continued and improved administration support for the M.Sc. in Immunology and any new PGT courses in our School	External Examiner	The MSc in Immunology is being supported and our School will continue to review administrative support as our new M.Sc. in Immunotherapeutics is launched.
Currently IM7103 and IM7111 modules are 5 ECTS, but their student contact hours warrant 10 ECTS	External Examiner	These modules will be made 10 ECTS each and the curriculum will be adjusted to accordingly.

Issue (Academic)	Trigger/source for enhancement	Resolution/enhancement
Streamlining of annual Ph.D. progress reports and confirmation reports	Requirement from GS to have annual reports completed in advance of students being required to register for next year	We have now implemented internal deadlines for submission of 1st and 3rd year annual reports and for completion of confirmation process. The benefits of this are that administration surrounding these items is limited to specific times each year and also academic members of staff know that at the same time each year they will be called upon to sit on confirmation viva panels. This is outside of the UG teaching calendar which takes pressure off staff. Students have also welcomed the structure that this has introduced to their PhD studies.
Introduction of a new taught module in Core Biomedical Research Skills	Requirement for students to complete 10ECTs as part of the TRINITY structured PhD	We have developed an entirely new Core Biomedical Research Skills Module (BIP77100). This module was introduced for first year PhD students in the 2018/19 academic year. The module provides students with hands-on training in the necessary skills required to complete a PhD in the biomedical field. The module runs throughout the academic year and is being taken by all of our first year PhD students. We will obtain feedback from students at the end of this first year which will enable us to modify the course accordingly.
Development of a new MSc in Immunotherapeutics	Feedback from stakeholders that such an MSc was required to provide appropriately qualified graduates to fulfil the current labour market in the biopharma sector in Ireland and abroad.	New MSc in Immunotherapeutic was approved at GS in January and is awaiting council approval after which time recruitment for the 2019/20 academic year will begin.

Issue (Academic)	Trigger/source for enhancement	Resolution/enhancement
School of Chemistry		
Complete semesterisation of modules	TEP-triggered regulation changes May 2017	There was little point in making large-scale changes to UG teaching in 2017/18 given the preparations taking place to adapt course programmes to comply with TEP starting in 2018/19. As members of T&L and SL committees, students were kept apprised of course restructuring possibility and decisions made to ensure compliance with the new TEP regulations.
Integration of NMR tutorials into the schedule of the NPCAM cohort	Feedback at the Sophister liaison committee meeting 2017-18	Additional NMR tutorials were offered to JS students at the request of N-PCAM as they did not cover this technique in their labs. The tutorials were then integrated into the NPCAM students' schedule for future years to support NMR interpretation learning as requested.
Upgrade of lecture-theatre facilities	Student/academic feedback	Document cameras were added to the suite of teaching aids available in our two main lecture theatres. In addition, the projector in one of these theatres was replaced. The blackboards in the Large Lecture Theatre were resurfaced to improve visibility, as requested by students at SLC meeting in March 2018
There was a longstanding issue with some students marks not being returned by the academic or not being recorded in Banner (UCD's SITS equivalent) as evidenced by requests for results from students approaching a credit milestone (confirmation on PhD register or ready to submit PhD thesis)	Various	A comprehensive effort was made to locate all module marks that were missing from the records of current postgrad students' and to update and verify each student's module record; This is the starting point for a new system whereby all Trinity students PG module marks will be processed in-house, removing one of the barriers to control over visualization of progress

Issue (Academic)	Trigger/source for enhancement	Resolution/enhancement
School of Computer Science and Statistics		
Isolated (3) modules with low average marks	External examiner, Integrated Computer Science	Initiate review of mathematics in Computer Science (ongoing). Revision of curriculum in one module.
Inconsistent or inadequate annotation of marks on exam scripts in some modules	External Examiner, Computer Engineering	A new set of guidelines on the annotation of exam scripts has been issued to examiners
Format of forms used for the evaluation of dissertation (Year 5) projects	External Examiner, Computer Engineering	A new form will be used in 2018/2019 during the assessment of dissertations
Communication with Year 4 and Year 5 Computer Engineering students in relation to final year projects and dissertations	External Examiner, Computer Engineering	Improved coordination between School of Computer Science and School of Engineering
Tracking of PGR Annual Reports and PhD Confirmations	GSO requirement for registration	A process with clear timing has been implemented to ensure effective gathering of Annual Reports and that PhD Confirmations are conducted before Year 3 registration.
PGT student course surveys	Restructuring of PGT offerings in the School.	Online surveys using Qualtrics were designed and carried out for MSc in Computer Science and Post-graduate Certificate in Statistics. MSc IDM continues to run a paper-based course survey.
Pre-requisite skills for MSc in CS strands	Diversity of incoming cohort, in particular a large percentage from non-EU.	Details of preparatory work is sent to students prior to joining the programme. Based on PG feedback gathered, changes were made to two modules on the programme
School of Engineering		
School-wide MAI projects	Internal requirement.	The process has been incorporated into our allocation of projects. It is working very successfully.

Issue (Academic)	Trigger/source for enhancement	Resolution/enhancement
Phased tightening of regulations regarding eligibility for MAI year	Internal requirement plus feedback from SL regarding TEP progression.	We have gradually incremented our requirements such that form 19/20 the entry requirement for the MAI programme will be 60%:60% in the JS and SS years.
Integration of TEP Trinity Electives and Approved Modules within academic programme	TEP requirement	Working with the SL we have identified how 10 ECTS of TE and 20 ECTS of AM can be incorporated into the Engineering programme.
Enhancement of the MSc in Engineering (by Module) so that the character of the course is easier to understand and more accessible to non-EU students, and also more research-based, equipping graduates for careers in high-tech engineering industry.	As a result of student feedback and also feedback from applicants and agents, especially in Asia.	It was decided to increase the amount of credits given to the project (to 40ECTS), to limit the content to Mechanical Engineering subjects, and to change the name to "MSc in Mechanical Engineering". The change was achieved for the 2018/19 intake.
Modules in relation to MSc in Bioengineering, and choices in examination papers.	Student feedback/ External examiner recommendation.	Greater module choice was made available to students. Choice has been removed from written papers.
School of Genetics and Microbiology		
Deadlines for course work resulting in a very high student workload at times	Student Feedback	Deadlines were reviewed in and some cases rearranged to ensure a more even spread of the student workload.
It was felt that the awarding of marks for Senior Soph projects in Genetics should be more transparent.	External Examiners	Supervisors and second markers now give individual marks for lab performance (supervisor) and lab report (both supervisor and second marker) and a total mark is calculated from these individual marks.
The moderatorship marks are too compressed and often lie within a narrow band between 60 and 70%.	External Examiners	Lecturers were once again reminded to make better use of the full range of the marking scale.

Issue (Academic)	Trigger/source for enhancement	Resolution/enhancement
The shortfall in funding for PG student fees provided by external funding agencies (e.g. SFI, €6K per annum) and the fees levied by College (€7 K per annum) is putting academic staff and School budgets under increasing pressure, especially labs that have numerous PhD students.	Various	At present, we are seeking to use School funds to cover the shortfall, but this is not a long-term solution and a write-off by Trinity may be a more appropriate method of addressing this issue.
The requirement for yearly progress reports caused some confusion amongst students and its distinction from the continuation report was part of this confusion. The process of PhD thesis submission was also not clear amongst the PG student community.	Various	A thoroughly revised PhD student handbook has been prepared and circulated to all PhD students to address these issues.
School of Mathematics		
Subpar standard of model solutions for a couple of Sophister papers	External examiner	Instruction to the relevant lecturers was provided
Inconsistencies in curriculum for one of the fore modules (MA1213) over the two consecutive years	Student complaint to the SL following the Schol exams	Additional mechanisms to ensure uniformity of requirements for core modules in different years
Confirmation reports	Graduate Studies Committee	The confirmation procedure is now completed within 18 months.
Progress reports	Academic Registry and the Graduate Dean's Office	Progress reports for each PG student are now submitted to the Graduate Dean's Office and Academic Registry.
School of Natural Sciences		
Resolution of moderated grades	External Examiners	Provision of short written memos to a standard format outlining basis for moderated grades.
Consistency in provision of Feedback	Evaluations/externals	Greater use of Blackboard for feedback on CA work. Development of feedback templates (Module Specific) for some modules.

Issue (Academic)	Trigger/source for enhancement	Resolution/enhancement
Curriculum development	External examiners.	Changes to curricula based on suggestions form external examiners.
PGT: Opportunity for class discussion could be increased	Student feedback	More discussion sessions introduced.
Introduction of overseas students to scale of Irish land-use and agriculture	Student feedback	Introduction of a weekend residential field visit (Burren). Starting in 2017-18, repeated for current year.
Patterns observed in dispute in marks between 1st and 2nd markers of dissertations.	External Examiner	Where first and second marks differ by more than 10%, or where these marks cross a class boundary, there will be a request for formal reconciliation of the marks to take place between first and second markers. The outcome of this reconciliation will be recorded by with a short, written justification of the agreed mark on a feedback sheet, with reference to the dissertation marking scheme. If first and second markers are unable to reach a reconciliation, a third marker will provide an independent assessment of the dissertation.
Insufficient time and opportunity to meet with dissertation supervisors to learn about individual projects, before students selected a research project.	Student Feedback	The period from when dissertation titles are posted and the deadline for selection, ensuring that maximum time and opportunity is provided for students to discuss potential projects with supervisors before making their selections.
Standardisation of the continuation process for PhD students across the School. Development of 4 new discipline PG manuals. Update of School PGR manual	DPTL working with discipline co-ordinators	In progress
Design of new 5 ECT general postgraduate skills module	DPTL	In progress
Clarity around publishing for PhD	DPTL working with Dean	College Working group have published recommendations

Issue (Academic)	Trigger/source for enhancement	Resolution/enhancement
School of Physics		
Low marks on problem solving paper with possible gender issue in marks distribution.	External examiner feedback School's statistical analysis of marks and comparison over a >10 year period	Detailed statistical investigation of marks distribution, investigated relevant literature, redesign of paper and question structure to target learning outcomes. Paper brought in line with institutional marking scales 2018 results showed improvement and no gender issue in marks distribution.
Slow return of CA marks	Student feedback, student reps.	Staff reminded of college policy. Increased use of Blackboard to return marks encouraged and achieved. Responses to individual students & reps to manage expectations. Reduction/redesign of CA for some larger classes for which marking was unmanageable.
Under-capacity in various areas but especially JS labs.	School Management & professional body	JS lab time/student reduced (scheduled on a 2/3 rota) with concomitant reduction in number of experiments and reports .The former has, however, reduced the student experience in the labs, and students find it difficult that their equipment is used by different groups during an experiment. However, this is unavoidable without significant extra space + lab equipment.
Over-assessment in JS labs.	Professional body	
Progress reports were not being submitted in a timely manner.	Measure introduced by the Dean of Graduate Studies	Progress report is now a requirement for the student to register in the following year.
Introduction of a new compulsory module on Research Integrity	Measure introduced by the Dean of Graduate Studies	This is expected to reduce the number of cases of plagiarism and misconduct

Issue (Academic)	Trigger/source for enhancement	Resolution/enhancement
Dissatisfaction among PGR students at School policy of teaching requirement ('Demonstrating').	Student responses in ISSE and raised by students directly and through GSU rep. with DTL(PG) and Exec respectively.	Better communication of School policy and financial payments by School on behalf of students (e.g. payment of fees, fee and stipend top-ups). Annual general meeting of PGR students with School management.

Selected School enhancements in 2017-18 (Student Life):

Issue (student Life)	Trigger/source for enhancement	Resolution/enhancement
School of Biochemistry and Immunology		
In course assessment practical exam : move later in Semester 1	Student Feedback	Exam moved as requested
Better exam venue space for in course exams	Student Feedback	Larger Venues available
Spacing of in course assessments	Student Feedback	Allocation of sufficient time between assessments. Flexibility within course assignments.
Over assessment of our students	Extern and student feedback	By Merging 2 modules we will also merge the assessment
Additional clinical studies	Student Feedback	We have added a Paediatric Immune lecture and clinical case workshop to our Clinical Immunology module
Requirement by PhD students to feel more of a community	Student feedback to DPGTL	We have introduced a new taught module for PhD students. All first year PhD students in the School are required to take this module and the students are welcomed to the School at the start of the module by the DPGTL and the HOS. This has significantly increased the feeling among PhD students that they belong to a defined cohort of students and has improved communication and networking among the students themselves. It is hoped that this collegiate feeling will stay with each group of PhD students as they progress through their PhD.

Issue (student Life)	Trigger/source for enhancement	Resolution/enhancement
School of Chemistry		
Increased interaction with lecturers in Sophister years	Feedback at student focus group and extern reports 2017-18	Information sessions have been scheduled in 2018-19 by the Sophister year coordinators to engage more with students.
Guaranteed break each day	Student feedback	All Sophister students taking chemistry-only modules were guaranteed a lunch break from 1-2pm each day; this has been embedded in the timetable and made sacrosanct
Following student feedback at committee meetings and town-hall meetings the School agreed to continue with the demonstrator payment schedule as it stands for all continuing postgrads	Student Feedback	Changes to the payment of demonstrators who receive direct funding of fees or stipend from the School was flagged well in advance with all incoming postgrads but did not affect those PGs who started under a different system
As an initial step in overhauling the provision of a quality postgraduate experience in the School, the new DLTPG carried out an extensive online survey (60% response rate)	Student Feedback	Initial steps in addressing student feedback are to (a) appoint and provide induction to dedicated postgraduate executive officer, (b) collate a list of major issues raised in PG survey, (c) make a start on addressing communication issues through (c i) updating the School's postgrad website and (c ii) arranging a townhall meeting with all postgrads. The introduction of online modules will provide students with the ability to fit these modules around their practical-lab schedules, which should ease the burden of them managing their time efficiently
School of Computer Science and Statistics		
Improved student labs, meeting rooms and equipment	Restructuring of SCSS' PGT offerings + launch of a new course with unprecedentedly large cohort of incoming students.	New State-of-the-Art facilities were created at South Leinster Street including labs, meeting and seminar rooms and kitchen for the new MSc in Computer Science. Additionally, the PGT lab spaces in Westland Row were refurbished and re-equipped to serve as interim facilities for the first semester and ongoing usage by the MSc IDM students.

Issue (student Life)	Trigger/source for enhancement	Resolution/enhancement
School of Engineering		
Enhanced clarity of marking schemes and of enumeration of marks on scripts enhancing the transparency of marking processes.	External Examiner	We have instituted systems whereby marking schemes are clearly outlined together with requirements for clear enumeration of scripts.
Providing students with CA deadlines for all modules	Student Feedback	We have initiated a process whereby CA deadlines are collected at the start of the Semester to facilitate students with appropriate time management
Students felt they didn't receive feedback in MSc in Bioengineering.	Student feedback/External examiner recommendation	A process for providing/documenting student feedback has been established. Course Director instructed academics (September 2018) to use blackboard to provide feedback to students in a timely fashion so that there is evidence.
School of Genetics and Microbiology		
Lack of high-quality space in the Genetics Department that can be used for studying	Student Feedback	Renovation of Genetics library space which is almost exclusively used by UG students. This work commenced in 2017/2018 and has now completed.
Some students have expressed a wish to organise a monthly gathering of PG students and postdoctoral researchers to discuss research in an informal setting.	Student Feedback	We have introduced a monthly gathering of postgraduate students and post-docs to increase opportunities for integration within the local community, enhance collaboration, and improve the student experience. We also aim to establish a regular forum for presentation of data amongst students.
PhD student orientation was not on-going in the School.	Student Feedback	The new PhD student handbook has addressed this issue and contains all relevant information for new students in the School.
School of Mathematics		
Lack of a proper UG handbook (with information spread across the School website in lieu of that)	USC approval of Handbook policy	Elaborate Handbook was prepared and circulated to all UG students

Issue (student Life)	Trigger/source for enhancement	Resolution/enhancement
School of Natural Sciences		
Access to Freeman Library	Student Feedback	Improved access conditions for students subject to responsible use of the library.
Students did not get to know their colleagues until during/after the South African field course, which comes towards the end of the taught modules	student feedback and comment by the external examiner	Introduced residential field course. Deliberately stayed at a hostel in a very quiet village; the students had to prepare meals etc working in groups, nothing else to do in the evening other than socialise. Feedback from students was very positive and it seemed to help the class gel far more quickly
School of Physics		
Provision of space for lunchtime events to facilitate student networking, discussion, social interaction.	Request from Student Physics Society, PhysSoc	School provides a space and tea/coffee for the PhysSoc 'BrainFood' events.
Limited exposure to research opportunities *within* the School (and associated TRI) for undergraduate students.	Trend new among graduates to increasingly pursue PGR opportunities elsewhere.	Introduced small number of School-funded summer research internships and integrated these with PI-funded and unpaid placements.
Traditional low numbers of women in physics i.a. lead to 'imposter' syndrome.	Initiative of University of Oxford, Physics Department	School and FEMS provided budget to up 10 female UG students to attend 'Conference for Undergraduate Women in Physics 2018', Oxford.
Space issues: Unsuitable workspace for PGR students.	ISSE: A number of students (approximately 16%) raised the issue in ISSE.	The School is under severe pressure on space issues and acknowledges that something must be done to accommodate the growing number of PGR students. Action: A review of the workspace occupied by PGR students must be carried out and an expansion plan must be drawn in conjunction with FEMS

Repeat issues and escalations:

- G&M: The external examiner for the Microbiology degree remarked that "the range of organisms that the department's expertise covers in detail is somewhat limited by the small number of staff and this is likely to impact on the range of microbiological expertise Ireland is able to call upon in the future. This is particularly the case with respect to virology and parasitology, and emerging microbiological diseases."
  - Issue: Escalated. To be discussed with the Dean during staff planning.
- B&I: There is no specific space allocated to students (Science) for lunch, etc. in TBSI. The Knowledge Exchange room is often booked during lunch times and because of this there is nowhere for the students to eat lunch. Attempts are under way to resolve this ongoing issue within TBSI
  - Issue: open.
- Chemistry: The procedure for moderating final degree marks requires changes in individual marks to engineer the desired final mark. It would be preferable to be able to moderate by making explicit that the moderation is the result of the external examiners moderation process. This requires a change in the SITS process
  - Issue: escalate to Academic Registry.
- Chemistry: As in previous years, the poor sound quality in the Goldsmith Hall was raised as a factor affecting students' ability to engage in classes held there. This is something that has been raised by several groups over several years and College has plans to redesign this space to improve its functionality
  - Issue: open.
- SCSS: Lack of catering facilities for PGT students - this issue has been raised many times over the years to no effect.
  - Issue: open.
- SCSS: The external examiner for the PGCert in Statistics has highlighted the need for more diverse electives in the programme.
  - Issue: Offerings in this area have been constrained by staffing in the area of Statistics. The School is in the process of recruiting in this area.
- SNS: Timetabling: Some student dissatisfaction with curtailed options due to timetabling/semester balance requirements.
  - Issue: closed. School have maximised options within current constraints.

3.5 Accreditation Cycle

Programme	Accreditation Body	Date of Last Accreditation Visit	Outcome Achieved*	Date of Next Accreditation Visit
BAI in Biomedical Engineering	Engineers Ireland	December, 2016	Accredited for 5 years	December, 2021
BAI in Civil, Structural and Environmental Engineering	Engineers Ireland	December, 2016	Accredited for 5 years	December, 2021
BAI in Computer Engineering	Engineers Ireland	December, 2016	Accredited for 5 years	December, 2021
BAI in Electronic Engineering	Engineers Ireland	December, 2016	Accredited for 5 years	December, 2021
BAI in Electronic and Computer Engineering (combined programme)	Engineers Ireland	December, 2016	Accredited for 5 years	December, 2021
BAI in Mechanical and Manufacturing Engineering (Previously titled BAI in Mechanical Engineering)	Engineers Ireland	December, 2016	Accredited for 5 years	December, 2021
BSc (Ing) in Engineering with Management	Engineers Ireland	December, 2016	Accredited for 5 years	December, 2021
MSc in Engineering (Civil)	Engineers Ireland	December, 2016	Accredited for 5 years	December, 2021
Physics, Physics and Astrophysics, Theoretical Physics, Nanoscience.	Institute of Physics	1 February 2011	Accredited	Deferred to 23 November 2018

School of Engineering:

- The Accreditation Panel recommended the appointment of an Internship Officer and this has now been included in the School's E3 Business Plan.
- The accreditation visit was very successful with the panels being extremely satisfied with the quality of the TRINITY offering.
- The Accreditation Panel recommended that the School appoint an Internship (Industry) Officer who would oversee all aspects of the School's internship programmes and act as the liaison person with industry. This position has now been included in the E3 Business Plan and the School will make such an appointment in Spring 2019.

School of Physics

- Accreditation was due for renewal in March 2017, but an extension was granted and the School will go through the process in 2017/18. The extension is to allow the School to present plans for revisions to the course structure under the Trinity Education Project that will come in during the next accreditation period. These revisions are currently being planned, guided by the previous accreditation report and our professional accreditation requirements.

3.6 Quality Review Cycle

School, Programme or Trinity Research Institute	Date of Quality Review	Type of Quality Review (S, P, R)*	Current Status (RR, IP, PR)**	Next review due
Chemistry	16-18 November 2015	S	Progress Report approved by Council in February 2018	2022/23
Computer Science and Statistics	15-17 February 2016	S	Progress Report approved by Council in June 2018	2022/23
Trinity College Institute of Neuroscience (TCIN)	25-27 April 2016	R	Progress report approved by Council in June 2018 (PR)	2022/23
CRANN	May 2018	R	Review Report approved by Council in June 2018 Implementation Plan approved by Council in October 2018	2024/25

*School (S); Programme (P); Research (R). ** Review Report (RR); Implementation Plan (IP); Progress Report (PR)

3.7 Progression, Retention and Completion Statistics

In 2017-18, progression in UG courses in the Faculty fell below the College's Strategic Plan target of 90%. Several courses with progression below 90% (Medicinal Chemistry, Chemistry with Molecular Modelling, NPCAM, Earth Sciences, TR071 Science) have been amalgamated into the new four-stream science course entry from Sept 2018.

Faculty Total UG JS New Entrants	862	
Progressed same course	733	85%
Repeat same course	35	4%
Transferred other course	60	7%
Was not retained	34	4%

Table: UG New Entrants progression data for FEMS 2017-18

School	Course	Total Student Number	%	Female	Male	EU	NEU	Full-Time	Mature	DARE (Merit)	DARE (pts)	HEAR (Merit)	HEAR (pts)	Total
Chemistry	**Chem w Molecular Model**	**6**	**-**	**2**	**4**	**6**		**6**						
	Progressed same course	4	67%		4	4		4						
	Repeat same course		0%											
	Transferred other course	2	33%	2		2		2						
	Was not retained		0%											
	Medicinal Chemistry	**31**	**-**	**24**	**7**	**29**	**2**	**31**		**3**		**1**	**4**	**8**
	Progressed same course	20	65%	15	5	19	1	20		3		1	2	6
	Repeat same course		0%											
	Transferred other course	9	29%	7	2	9		9					1	1
	Was not retained	2	6%	2		1	1	2					1	1
Computer	**Computer Science**	**86**	**-**	**16**	**70**	**79**	**7**	**86**	**1**	**1**		**4**	**1**	**6**

School	Course	Total Student Number	%	Female	Male	EU	NEU	Full-Time	Mature	DARE (Merit)	DARE (pts)	HEAR (Merit)	HEAR (pts)	Total
Science and Statistics	Progressed same course	78	91%	16	62	71	7	78		1		4		5
	Repeat same course	7	8%		7	7		7	1				1	1
	Transferred other course		0%											
	Was not retained	1	1%		1	1		1						
	MSISS	**28**	**-**	**5**	**23**	**28**		**28**		2	5		1	8
	Progressed same course	28	100%	5	23	28		28		2	5		1	8
	Repeat same course		0%											
	Transferred other course		0%											
	Was not retained		0%											
Natural Sciences	**Earth Sciences**	**20**	**-**	**10**	**10**	**20**		**20**	**2**	2			1	3
	Progressed same course	17	85%	10	7	17		17		2			1	3
	Repeat same course	1	5%		1	1		1	1					
	Transferred other course	1	5%		1	1		1	1					
	Was not retained	1	5%		1	1		1						
Engineering	**Engineering**	**182**	**-**	**49**	**133**	**172**	**10**	**182**	**1**	5	3	6	2	16
	Progressed same course	160	88%	46	114	152	8	160	1	5	1	6	2	14
	Repeat same course	13	7%	1	12	12	1	13			1			1
	Transferred other course	7	4%	1	6	6	1	7			1			1
	Was not retained	2	1%	1	1	2		2						
	Eng with Management	**22**	**-**	**8**	**14**	**20**	**2**	**22**			1	1		2
	Progressed same course	20	91%	8	12	20		20			1	1		2
	Repeat same course	1	5%		1		1	1						
	Transferred other course	1	5%		1		1	1						
	Was not retained		0%											

School	Course	Total Student Number	%	Female	Male	EU	NEU	Full-Time	Mature	DARE (Merit)	DARE (pts)	HEAR (Merit)	HEAR (pts)	Total
Genetics and Microbiology	**Human Genetics**	**14**	**-**	**13**	**1**	**14**		**14**			2		1	3
	Progressed same course	10	71%	9	1	10		10					1	1
	Repeat same course		0%											
	Transferred other course	3	21%	3		3		3			2			2
	Was not retained	1	7%	1		1		1						
Mathematics	**Mathematics**	**32**	**-**	**5**	**27**	**32**		**32**	**2**		2		2	4
	Progressed same course	26	81%	5	21	26		26	1		1		1	2
	Repeat same course		0%											
	Transferred other course	1	3%		1	1		1						
	Was not retained	5	16%		5	5		5	1		1		1	2
Multi-School	**NPCAM**	**30**	**-**	**5**	**25**	**30**		**30**		3	1		1	5
	Progressed same course	24	80%	4	20	24		24		3			1	4
	Repeat same course		0%											
	Transferred other course	2	7%		2	2		2						
	Was not retained	4	13%	1	3	4		4			1			1
	Science	**329**	**-**	**181**	**148**	**312**	**17**	**329**	**4**	7	27	10	22	66
	Progressed same course	279	85%	158	121	265	14	279	4	7	10	10	19	46
	Repeat same course	11	3%	4	7	10	1	11			5		1	6
	Transferred other course	24	7%	11	13	23	1	24			8			8
	Was not retained	15	5%	8	7	14	1	15			4		2	6
	Theoretical Physics	**42**	**-**	**8**	**34**	**42**		**42**	**2**	2	2	1		5
	Progressed same course	30	71%	4	26	30		30	2	1				1
	Repeat same course		0%											
	Transferred other course	10	24%	4	6	10		10		1	2			3
	Was not retained	2	5%		2	2		2				1		1

School	Course	Total Student Number	%	Female	Male	EU	NEU	Full-Time	Mature	DARE (Merit)	DARE (pts)	HEAR (Merit)	HEAR (pts)	Total
Multi-Faculty	**Comp Sci and Language**	**11**	**-**	**7**	**4**	**10**	**1**	**11**	**1**	1				1
	Progressed same course	9	82%	6	3	8	1	9	1	1				1
	Repeat same course	1	9%	1		1		1						
	Transferred other course		0%											
	Was not retained	1	9%		1	1		1						
	Comp Sci and Business	**29**	**-**	**9**	**20**	**27**	**2**	**29**			1			1
	Progressed same course	28	97%	9	19	26	2	28			1			1
	Repeat same course	1	3%		1	1		1						
	Transferred other course		0%											
	Was not retained		0%											
Faculty	**Grand Total**	**862**	**100%**	**342**	**520**	**821**	**41**	**862**	**13**	**26**	**44**	**23**	**35**	**128**

3.8 Strategic Partnerships/Articulation Arrangements

School of Computer Science and Statistics:

<u>Articulation Agreement:</u> Thapar University, Patiala, India and Trinity College Dublin

<u>Participation 2017-18</u>: 27 Computer Engineering (D stream) students, 8 Electronic and Computer Engineering (CD stream) students

<u>Main issues arising:</u>

> The majority of the cases we have had to deal with to date have been health related. In some cases this has resulted in the student missing a large portion of a semester and we have taken the appropriate action in conjunction with their Tutor to help the student to submit outstanding coursework etc. or to defer the year. In a couple of cases the students were quite home sick and wanted to return to Thapar to finish their studies. In such cases we have liaised with the Thapar authorities and got the student back to their home university.

> The School appointed an academic coordinator as a point of contact for Thapar students on the D and CD streams and the School's Global Office provides assistance together with the Global Officer in the School of Engineering with respect to non-academic issues.

> Issues that could not be resolved at School level are escalated to the Thapar Student Integrated Sub-Committee and if necessary to the Thapar Steering Committee.

School of Engineering

<u>Articulation Agreement:</u> Thapar University, Patiala, India and Trinity College Dublin and INSA Lyon Double Diploma

<u>Participation 2017-18</u>: 50 students

<u>Main issues arising (Thapar):</u>

> Student life – The Thapar Student Integration Sub-Committee was established, consisting of academics from Engineering and Computer science, Global officers, the International Student Experience Manager, and other representatives from Global Relations, Trinity Halls, the Careers Advisory Service and Academic Registry. The Sub-Committee is a support network for the Thapar students and is responsible for resolving student issues, planning for student orientation and managing the student transition to Trinity.

> Global Officer for Engineering organised pre-departure orientation events in Thapar to guide students through the application process and advised on student life in Trinity.

> Academic issues – Attendance at lectures and tutorials. Follow-up orientation events were organised each semester in TRINITY to ensure students were aware of Trinity regulations regarding attendance and the supports they could avail of in the event of any issues. Trinity academic expectations were highlighted in pre-departure event in Thapar for incoming cohort to try and mitigate these issues in the future student cohorts.

Issues that could not be resolved by the Thapar Student Integration Sub-Committee were escalated to the Thapar Steering Committee. The Thapar Steering Committee consists of Engineering Academics, acting as advisors to the students in each Engineering discipline, and representatives from Global Relations.

Main issues arising (INSA Lyon)

This is a long-running partnership programme, no issues were observed with student life and academic performance.

4.1   Progress on Athena SWAN

School of Biochemistry and Immunology:

We are currently working on an Athena Swan Bronze application. Our Athena Swan Committee has worked extensively on this for the past 6 months and we will submit soon. As part of this there have been specific meetings with all School cohorts and this has been a rewarding process in terms of identifying issues of concern within the School. We see this as an ongoing process that should help build stronger connections across the School from undergraduate students to Professors and our technical and administrative staff. If we are successful in our Bronze application we would plan to apply for a Silver award sometime over the coming 3 years.

School of Chemistry:

The School has been in receipt of an Athena Swan Bronze Award over the period 2015-2018. During the period under review the School, through its Athena Swan Self Assessment Team (ASSAT) chaired by Prof. Sylvia Draper, worked extensively in developing an application for an Athena Swan Silver Application and this was successfully submitted on 30 November 2018. As part of this application a detailed action plan was presented comprised of prioritised actions to address the issues identified in the application. The plan covered current initiatives and the School's aspirations for the next three years.

To date our Athena Swan actions have resulted in the creation of a permanent and formal role for the ASSAT in the School's management structure; a 50% increase in female academics on decision making committees; more transparent communication and enhanced consultation through the re-introduction of monthly School Committee meetings; improved staff induction and mentoring procedures; enhanced visibility of our female staff (24% of our research seminars are presented by female academics compared with 16% over the period 2012/2015) and new targeted career supports for our PG (40% female) and PDRF (32% female) cohorts. Furthermore we now actively track our online and recruitment materials and the progression of our UG students (2018 intake 55% female). WE use this gender disaggregated data (GDD) to underpin changes in our procedures, policies and teaching practices with a view to achieving greater gender parity.

The culture of the School has changed irrevocably. It has been transformed by implementing living; equality and diversity training (LEAD) for all staff (71% in 2018 versus 48% in 2015) and raising implicit bias awareness (49% staff). Since our 2015 Bronze AS award we have seen many firsts: the first female Head of School, first female Directors of Postgraduate and Undergraduate Teaching & Learning, the first female Global Director, and we welcomed the School's first female Chair Professor. Women have been as successful as men in applying for promotion and their research outputs have gone from strength to strength. I am proud to say that our female staff have attained the following accolades: European Research Council (ERC) researcher of the year, Science Foundation Ireland (SFI) Young Scientist of the year, Irish Lab award Young Leader, Royal Irish Academy (RIA) Young Chemist and IRC postgraduate awards, and they have attracted funding through ERC Starter, Consolidator and Proof of Concept Awards, SFI Principal Investigator and IRC Starter Laureate Awards.

I am convinced that all the above demonstrate the School's desire to be a trailblazer within College regarding Athena Swan. By supporting equality and diversity this School is becoming increasingly inclusive and vibrant.

School of Computer Science and Statistics:

The School has appointed an Athena Swan champion, and is putting the planning team in place. Prof. Tangney is actively involved in planning at the Faculty level.

School of Engineering:

The School is fully engaged in the Athena Swan process, with a new Athena Swan Champion appointed, Dr Sarah McCormack, who is the School's key liaison with the Faculty's Athena Swan planning group. A presentation from Dr Eileen Drew to the School Executive Committee is being planned for Semester 2.

The School's female registration numbers are rising with females making up 27% of undergraduate students across the 5 years of BAI/MAI programme and 25% of all postgraduate students

The School continues to target girls' schools through outreach programmes run by Dr Kevin Kelly with support from the Consortium Linking Universities of Science and Technology for Education and Research, https://cluster.org/.

School of Genetics and Microbiology

The School is engaged in making an application for an Athena Swan Bronze award. This involves a considerable exercise in data gathering and will benefit from a Faculty level support appointment. Professor Aoife McLysaght has agreed to act as champion for this application within the School and is assembling a self-assessment team from different layers of the School's members.

School of Mathematics

We have formed an Athena Swan committee, chaired by Prof. Stefan Sint, and are planning to submit an application for Bronze status in the November 2019 round.

School of Natural Sciences

The School of Natural Sciences currently holds a Bronze Award and applied for a Silver Award in November 2018.

School of Physics

The School of Physics was awarded Athena Swan Bronze status in September 2015, and re-applied for Bronze status (November 2018)

4.2　Benchmarking

School of Computer Science and Statistics:

As part of the School's governance restructuring, we performed a review of the top 10 ranked computer science Schools internationally. We also recently visited the School of Computer Science at Carnegie-Mellon University to learn more about their academic programmes and governance. This information has informed and will continue to inform our strategic plans for quality enhancement in the School.

Two of our programmes are externally accredited by Engineers Ireland until 2019. We are currently reviewing other accreditation/benchmarking options.

School of Physics

There is an annual voluntary benchmarking process among all the Schools/Departments of Physics in the Republic of Ireland.