

Quality Enhancement Plan
School of Mathematical Sciences
28th March 2022

FOR COMPLETION BY QEU	
Date of Peer Review visit: 4-12 November 2020	Head of Unit: Kevin Hayes
Link to Panel Report published on QEU website: https://www.ucc.ie/en/media/support/qualityenhancementunit/reports/sefs/SchoolofMathematicalSciences-PeerReviewGroupReport2020-21.pdf	Date QEP considered by Quality Enhancement Committee: 26th September 2022

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴	Effectiveness/Impact ⁵ To be completed as part of follow-up
1	The Head of School and the School Executive Management Committee should prioritise the development of	1.A subgroup of EMC will be established to	HOS	None	Q2 2022	Green Illustrates commencement

¹ May include actions planned within the unit or those that require interface with other parts of the university

² E.g. Head of School, School Manager, all staff, specific committees etc

³ Resources – the financial or human resources required to implement the recommendation

⁴ Interim milestone dates can be included here (e.g. within 6 months, within 12 months, within 3 years etc.)

⁵ To be completed as part of follow-up 12-15 months post publication of QEP - Recognising the need to reflect on the effectiveness of actions undertaken, and to what extent the actions have achieved their intended outcome

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	<p>the School's new strategic plan, exploiting the opportunity of the current review of the University's Strategic Plan and Academic Strategy, in order to realise its vision of bringing Mathematical Sciences to its full potential. This might include consideration of:</p> <p>1.a. Appointment strategies, focusing on areas where they might collectively envision to develop in research, teaching directions, ensuring appropriate balance in the research expertise across the School, taking into account new research directions and interdisciplinary opportunities, especially with Computer Science and Physics;</p> <p>1.b.Sustainability of their current internationalization activities and planning for the future;</p>	<p>develop this in Q3 2022.</p> <p>2. A 3 -year staffing plan is being developed by School to address these highlighted areas</p> <p>1. Enhanced relationships with BTBU to further cement this relationship</p>	<p>EMC</p> <p>EMC</p>	<p>Subject to posts being filled</p> <p>None</p>	<p>Q2, 2022</p> <p>In 2021 this joint agreement was extended to May 2031</p>	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	<p>1.c. Enhance its visibility within the University and externally, building on the current high regard and the Boole legacy;</p> <p>1.d.Strategic use of resources as seed funding for initiatives such as conference travel;</p>	<p>2. Rebranding of our MSc Modelling and Self Learning Systems to MSc Mathematical Modelling and Machine Learning</p> <p>1. Introduction of Boole Summer Internship Scheme</p> <p>1. Development of “Staff Development & Research Support Fund” to support outlined initiatives.</p>	<p>Applied Maths HOD</p> <p>SOMS TLSE Committee</p> <p>EMC</p>	<p>None</p> <p>€3000 per award</p> <p>€1000 budget per academic staff member</p>	<p>In place Sept 2022</p> <p>Q2, 2022</p> <p>Q2, 2022</p>	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	<p>1.e. Transparency in the management of School funds and application procedures for awarding of scholarships/conference travel funds and so on;</p> <p>1.f. Explicit articulation of the School's values such as integrity, commitment to students and excellence, together with the development of a new cohesive and enabling School's identity, animated</p>	<p>1. Appointment of "Independent Chair of School Board" - ensure decisions taken by School Board are implemented by the School.</p> <p>2. Annual reporting to School Board by all standing committees of the School</p> <p>1. Development of good School governance via formation of "School Rules"</p>	<p>EMC</p> <p>All Committees</p> <p>EMC</p>	<p>None</p> <p>None</p> <p>None</p>	<p>Q1, 2022</p> <p>Q3, 2021</p> <p>Q1, 2021</p>	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	<p>by a spirit of collegiality and quality enhancement, as part of the completion of the initiated schoolification process;</p> <p>1.g.Leverage at a strategic level the outstanding work that has been carried out in relation to innovative approaches to Teaching, Learning and Assessment, which aligns fully and, in many instances, predates the University’s Academic Strategy; Pursue the formation of a cluster within the School dedicated to the development, promotion and implementation of such innovative approaches broadly across the School with excellent outcomes for all the stakeholders (i.e. students, staff, University and society), building on their synergies and potential;</p>	<p>1. Support staff in their applications for University Teaching and Learning awards.</p> <p>2. Formation of working group clusters which facilitate innovative approaches to excellence in University such as: <u>Critical Friendship Conversation Protocol</u> -session which develops in depth discussions</p>	<p>EMC</p> <p>EMC</p>	<p>None</p>	<p>Q1, 2022</p> <p>Q1, 2022</p>	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	<p>1.h.A critical assessment of workload management among staff members, adoption of a fair and transparent staff workload distribution model and continuation of the initiated work on rationalization of programmes and assessment.</p>	<p>re- research area, topic discussions.</p> <p><u>YogaFit</u>-You've got a friend in teaching- a pilot for feedback on lectures via critical friendship.</p> <p>1. All staff to have participated in PDRS to fully capture staff workload.</p> <p>2. A subgroup of EMC to review and report on module rationalisation for School.</p> <p>3. Introduce a 2 year pause on the</p>	EMC	<p>None</p> <p>None</p>	<p>Q3, 2021</p> <p>Q2, 2022</p> <p>Q4, 2021</p>	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
		School MSc Actuarial Science for 2022/23		€120k loss fees income? Based on 21/22 figures	Approved by SEFS for 22/23	
2	<p>The Head of School and senior leadership should:</p> <p>2.a. Establish a Strategic Advisory Board, taking advantage of the extraordinary good will among valuable potentially strategic partners, both internally and externally, such as CSO, private sector employers, and research partners such as <i>Teagasc</i> and Head of School of cognate disciplines (Physics, Computer Science and Engineering) with whom they have already established promising informal partnerships.</p> <p>2.b. Work with the Head of College to identify appropriate structures and membership for the Strategic Advisory Board, building on prior experience in other areas within the College.</p>	<p>1 Consideration for SAB being considered by SOMS EMC</p> <p>2. Submission of SEFS New Connection Grant for “Industry Research Workshops B2I-Boole 2 Industry</p> <p>1. Consideration for SAB being considered by SOMS EMC</p>	<p>EMC</p> <p>EMC</p> <p>EMC</p>	<p>None</p> <p>€5000</p> <p>Cost unknown</p>	<p>Q1, 2023</p> <p>Q3, 2022</p> <p>2023-Following initial enquiries proposed to await until the establishment of</p>	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
					SEFS SAB before developed further at School level.	
3	Given the complex demands of academic leadership in the contemporary academic world, the Panel recommends that senior academics within the School should, with the support of the College, identify and avail of external and internal strategic leadership training and development opportunities, including team-work across the disciplines, in order to empower the team to optimize the opportunities to realise its strategic vision for the School.	1.School support for staff attendance at Current Leaders, level 1 +2	EMC	€650 per attendee	2021 and onwards (6 staff have undertaken this course since receipt of the panel findings)	
4	The Head of School and the leaders of the disciplines should take the opportunity offered by the adoption of the new School's rules and structures to build a strong cohesive executive team in order to realise together their vision for the School.	1. Develop School Rules Document to support good governance in the School.	EMC	None	Adopted at School Meeting 25th March 2021	
5	The Head of School, School Executive Management Committee, in consultation with the Academic Programme and Curriculum Development Committee, should	1. Review of membership of various programme	EMC	None	Q4, 2021	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	adopt formal programme governance arrangements across all its programmes, including boards of studies and regular programme reviews, in order to enhance their already successful programmes.	committees in the School. 2. Regular meetings with Class Reps of students on our programmes. 3. MSc student rep and PhD student rep on the School Graduate Studies Committee	HOS SOMS GS Committee		Q1, 2021 Q1, 2020	
6	The Head of School and the School Executive Management Committee should pursue the plans highlighted in the Self-Evaluation Report to review the School's committee composition, structures and processes in conjunction with the SEFS College to ensure it is fit for purpose in the current context.	1. Development of School Rules to foster committee structures, annual reporting	EMC	None	Q2, 2021	
7	The Head of School and the School's Executive Management Committee, with the support of the Strategic Advisory Board, College and the University Ranking Unit, should focus on developing a strategy around	1. Development of School Strategic Plan	EMC	None	Q3, 2022	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	leveraging the Boole legacy and the research and innovative strengths of the School to raise the School's profile nationally and internationally (e.g. conference-organisation and attendance, research grant applications, editorial membership and participation in disciplinary committees, ...).	<p>2. Establishment of Boole Summer Internship Scholarships</p> <p>3. Establishment of Staff Development and Research Fund</p> <p>4. School Support in hosting Academic Conferences</p> <p>5.Appointment of Boole Professor of Mathematics</p>	<p>EMC/SOMS TLSE</p> <p>EMC/ Research Committee</p> <p>EMC</p> <p>EMC</p>	<p>€3000 per award</p> <p>€1000 per award</p> <p>Application Basis</p> <p>Cost based on appointment.</p>	<p>Q2, 2022</p> <p>Q2, 2022</p> <p>Q3, 2021 Hosted IMS Conference & Ongoing</p> <p>Q1, 2022-This post was submitted in School's 3-year staffing plan.</p>	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
8	The Head of School should proactively encourage the Staff and ensure they have time to participate in activities which contribute to peer esteem (participation in grant evaluation panels; keynote lectures; disciplinary committee activities and others).	Enhance SOMS international profile by staff supported role in external examination in national and international universities.	EMC	NA	Q3, 2022	
9	<p>The Head of School, the Executive Management Committee and the Teaching, Learning and Student Experience Committee should:</p> <p>9.a. Review the portfolio of programme curriculum and delivery, approaches to teaching, learning and assessment, in order to address the identified issues of over-teaching, overassessment, clustering of assessment deadlines and ensuring the proportionality between efforts and awards in Continuous Assessment.</p> <p>9.b. Mainstream the innovative approaches to Teaching, Learning and Assessment, which have been introduced by individual lecturers</p>	<p>1. As outlined previously in 1h.</p> <p>1. As outlined previously in 1h.</p>				

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	and leverage the benefits across the School; 9.c.Consider introducing a ‘reading week’ in Semester One, in order to give both students and staff time to reflect, prepare for and attend to other equally important duties and commitments.	1. Develop this panel recommendation for Q3, 2022.	EMC	NA	Q3, 2022	
10	The Teaching and Learning and Student Experience Committee, in conjunction with programme directors, should: 10.a. Make time for considering the overarching strategic intent of each programme and adjust its delivery, including considerations of sharing experiences, resources and approaches in teaching modules; 10.b.Seriously consider in the context of the schoolification, joint delivery of modules across the individual disciplines.	1. As outline in 1h previously. 2. Development of School wide continuous assessment mode of delivery 1. As outline in 1h previously.	EMC EMC Sub Group	Reduction in examiner claim for exam assessment. Unknown awaiting report	Q3, 2022 Q4, 2021	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	10.c.Consider, as appropriate for any given module, the involvement of more than one member of academic staff in delivering a module to facilitate time, research and resources flexibility and agility and ensure students benefit from different perspectives on any one subject.	1. As outline in 1h previously.	EMC Sub Group	Unknown awaiting report	Q4, 2021	
11	The Head of School and the School's Executive Management Committee should prioritise developing a constructive and stable relationship with the Careers Service to underpin development of both work placement and, more generally, personal and professional development, as well as career orientation for students (e.g. a University example of this is the PX3001 module for UG students of programmes within the College of Arts, Celtic Studies and Social	1. Working group to be established to review feasibility of work placement in our modules.	EMC Sub Group	None	Q4, 2021 - awaiting final report.	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	<p>Sciences – this optional 5-credit module is awarded to students as a diploma supplement outside of their degree). In particular, the Panel recommends that:</p> <p>11.a.The Head of School and the Executive Management Committee, in conjunction with the Programme Directors and the Career Service, should develop a work placement/professional work experience option within all or most the UG and PG programmes and ensure the students have access to the broad range of personal and professional development offered by the Careers Service;</p> <p>11.b.Undergraduate and postgraduate students should be proactively signposted to utilize university resources such as career development opportunities, skill development facilities by their Programme Directors, lecturers and supervisors, with coordination by the</p>	<p>1. Working group to be established to review feasibility of work placement in our modules</p> <p>1. Further collaboration with Careers Office, Skills Centre and other units of University which</p>	<p>EMC Sub Group</p> <p>SOMS TLSE</p>	<p>None</p> <p>None</p>	<p>Q4, 2021</p> <p>Awaiting final report.</p> <p>Q3, 2022</p>	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	School Manager, to ensure all in the School are aware of the various opportunities on offer.	would foster this development.				
12	Despite the staff's commitment in supporting research students, the evident level of dissatisfaction in relation to the IT infrastructure and funding for travel should be addressed.	1. Upgrade of IT facilities in PG Labs-PC Movement to different Labs.	School Manager & Systems Admin	€42k	Q1, 2022- Machines in Labs less than 3 years old. **Covid pandemic less emphasis on labs/more offsite working.	
13	While there is strong evidence of academic staff members participating in programmes delivered in Certificate/Diploma/Master's in Teaching and Learning in Higher Education, the staff should be encouraged by the Head of School and by the Teaching, Learning and Student Experience Committee to engage systematically with the resources and guidance/advice provided by CIRT.L.	1. Full engagement with PDRS with all staff to identify staff needs in terms of training/supports The School will develop an action plan following this activity responding to these needs.	EMC	Variable	Q3, 2022	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
14	Given the extraordinary individual initiatives in Teaching, Learning and Assessment, the Head of School and the Executive Management Committee, in consultation with the Research Committee and the Teaching, Learning and Student Experience Committee, should consider formation of a cluster to exploit the synergies and to enhance the impact and visibility of their innovative activities and leverage these strategically.	As previously outlined in 1g.				
15	In consideration of the high SST, the Head of the School, in conjunction with the Executive Management Committee, should focus on the steps that can be taken internally to manage the workload, and, in parallel, articulate compelling cases and business plans for additional staff appointments (potentially in collaboration with other schools), targeted at specific research and teaching expansion/refocusing plans and engage with the senior leadership team of the University to ensure the opportunities/risks are appreciated. In particular, the School staff highlighted the impact of the delays in replacement of two	As previously outlined in 1a.				

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	members of staff on the workload of others.					
16	The Head of School, the Executive Management Committee and the Athena Swan Committee should take the opportunity to proactively engage with the Athena Swan process, in order to enhance its continued efforts to ensure Mathematical Sciences students and future second level mathematics teachers and professionals have female role models.	1. An Athena Swan Committee was established with various working groups to lead out key areas for an application submitted for the School	EMC	EMC	Bronze Application submission Q2, 2022	
17	Building on this, the Head of School and Executive Management Committee should consider submitting a strong proposal for a Strategic Academic Leadership Initiative post, potentially in partnership with a cognate school.	1. Application for SALI position to be joint submitted with Applied Maths & Statistics.	HOS	Variable	The School was not successful in its application for SALI post in Oct 2020.	
18	The Head of School and Executive Management Committee should proactively seek opportunities to recognize the extraordinary contributions within the School in outreach activities and innovative approaches to teaching, learning and assessment and success in research, for example through nomination for staff awards (e.g. Impact, Leadership,	1. Enhanced profiling of School activities via SEFS newsletter, WorkVivo and associated LinkedIn platforms.	EMC	None	Q3, 2022	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	Innovation and Outstanding Contributions; Early Career Researcher, Researcher of the Year and others).	2. Development of Maths Enrichment Programme Fund-support annual outreach activities, summer bursary.	EMC	€8000 per annum.	Q2, 2022	
19	The School should prioritise professional career development of its staff and, in this context, the Head of School should ensure that the periodic Staff Performance Management and Development review is utilized effectively to ensure that staff are aware of the criteria and avail of guidance in developing their professional development and career.	As previously outlined in 13.	EMC	Variable	Q2, 2022	
20	While the School is hosted in an excellent physical environment and adjacent to the School of Computer Science, access to high performance computing and other IT resources was raised as a challenge to be addressed by the School, potentially leveraging external resources such as ICHEC or in partnership with CSIT and Insight.	1. Investment in 43 new PC's for UG labs and PG labs	EMC	€42k	Q1, 2022	
21	Based on the success in attracting income through international partnerships and the generosity of					

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	the College in returning a significant proportion of this income to the School, the Head of School and the Executive Management Committee, in consultation with the Research Committee, should establish a mechanism for supporting conference attendance for staff and research students with clarity on process, transparency in allocation; while the funding has been historically committed to PhD studentships, a clear plan to adapt its usage, as the current commitment comes to an end, should form part of the strategic planning process.	<p>1. Development of Staff Development and Research Support Fund</p> <p>2. New George Boole Internship Programme</p> <p>3. Annual report submitted to School Board from all committee including EMC.</p>	<p>EMC</p> <p>EMC</p> <p>EMC</p>	<p>Application Basis >30k per annum.</p> <p>€3000 per application</p> <p>None</p>	<p>Q1, 2022</p> <p>Q1, 2022</p> <p>Q2, 2022</p>	
22	<p>The Head of the School, the Executive Management Team and the IT Officer, in conjunction with the Research Committee and Teaching and Learning and Student Experience Committee, should:</p> <p>22.a. Focus on improving the existing website to ensure it is an effective communication tool of the strengths and activities of the School, including learning, teaching and research and</p>	<p>1. Conduct a review of the School web interface and implement improved features which reflects the breath of activities of the School and its achievements.</p>	<p>School Manager & Systems Administrator</p>	<p>Student Help P/T pay budget approx.</p> <p>€2000 per annum</p>	<p>Q3, 2022</p>	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
	<p>outstanding contributions to innovation, science and society;</p> <p>22.b.Ensure the visibility of the unit's high calibre activities at School, College and University level, as well as externally, through School's website, newsletters and other communication opportunities (e.g. by liaising with the relevant offices such as SEFS, the University's Media and Communications and the OVPRI).</p>	2. Enhanced connections with university media offices in addition to new SEFS Marketing Officer	EMC	None	Q3, 2022	
23	The Head of School, together with the relevant academic staff, should explore the potential of initiating a partnership with the Glucksman Gallery, in order to showcase their innovative initiatives in data/theory visualisation.	Not being considered.				
24	The anticipated changes in the global market for international students may impact substantively on the School over the coming years. In light of this, the Head of School and the School Executive Management Committee should embed mitigation strategies in the strategic planning process.	<p>1.Enhance links with joint partner BTBU and further promotion of PG programmes within the School</p> <p>2. Marketing of our programmes to</p>	EMC	None	Q1, 2022	

Item No	Panel Recommendation	Actions Planned ¹	Responsibility for Action ²	Resource Implications ³	Implementation Schedule ⁴ Green Illustrates commencement	Effectiveness/Impact ⁵ To be completed as part of follow-up
		<p>reflect industry trends such as name change to our MSc Maths Modelling and Machine Learning</p> <p>3.Enhanced links with UCC Academy and SEFS International Recruitment Officer</p>	<p>EMC & SOMS GS Committee</p> <p>EMC</p>	<p>None</p> <p>None</p>	<p>Q1, 2022</p> <p>Q1, 2022</p>	
25	<p>In accordance with national policy for transnational education, a review of the operation to date of the joint programme BSc (Risk and Actuarial Science) with BTBU should be undertaken to inform future strategic development of the provision and a process of Annual Reporting should be established for ongoing monitoring of the programme. This should be taken forward by the Programme Director, in conjunction with Academic Affairs and Governance, Academic Programmes and Regulations and the Quality Enhancement Unit.</p>	<p>1. Review of our Joint Programme with BTBU and implementation of annual reporting to officers of BTBU and Ministry of Education.</p>	EMC	None	Q3, 2022	

For completion by Unit

Head of Unit: Kevin Hayes	Signature: <i>KEVIN HAYES</i>	Date: 28th March 2022
-------------------------------------	---	---------------------------------

Head of College/Functional Area:	Signature: <i>Sarah Culloty</i>	Date: 15th June 2022
---	---	--------------------------------