Programme Validation Report

Master of Science (Postgraduate Diploma, Postgraduate Certificate) in Data Analytics
Master of Science (Postgraduate Diploma) in Data Analytics with Precision Diagnostics
Master of Science (Postgraduate Diploma) in Data Analytics for Sport

Version of Report	Author	Date
1.0	Gráinne Hurley	10/09/2024
		Click or tap to enter a date.
		Click or tap to enter a date.
		Click or tap to enter a date.

Approval	Date
Programme Proposal approved by Faculty Board	23/11/2023
Programme Proposal approved by University Programmes Board	12/12/2023
Programme approved by Faculty Board	Click or tap to enter a date.
Programme approved by University Programmes Board	Click or tap to enter a date.

Section A - Programme Details

Title	Master of Science in Data Analytics, leading to awards of: • Master of Science (Postgraduate Diploma, Postgraduate Certificate) in Data Analytics • Master of Science (Postgraduate Diploma) in Data Analytics with Precision Diagnostics • Master of Science (Postgraduate Diploma) in Data Analytics for Sport
NFQ Level	9
ECTS Credits	90
Mode of delivery	Part-time ✓ Full-time ✓ The full-time programme will be offered on-campus. The part-time programme may be offered on-campus, online or blended.
Duration	Part-time: 24 months Full-time: 12 months The Postgraduate Diploma can be completed in two semesters full-time or four semesters part-time. The Postgraduate Certificate can be completed in one semester full-time and two semesters part-time. A flexible approach

	will be offered to students completing the programme part-time meaning that the part-time version of the programme can be completed over a longer period.
Mode of provision	Face-to-Face ✓ Blended ✓ Online ✓ The full-time programme will be offered on-campus. The part-time programme may be offered on-campus, online or blended.
Classification of award	Average Mark Band Classification ≥ 70% First Class Honours 60% - 69% Second Class Honours, First Division 50% - 59% Second Class Honours, Second Division 40% - 49% Pass
Discipline Programmes Board	• The Master of Science in Data Analytics will report to the Artificial Intelligence and Data Science Discipline Programme Board. • The Master of Science in Data Analytics with Precision Diagnostics and the Master of Science in Data Analytics for Sport will report to appropriate Discipline Programmes Boards in the School of Biological, Health and Sports Sciences
Faculty Board	Faculty of Computing
Schools involved in delivery	School of Computer Science School of Enterprise Computing and Digital Transformation School of Informatics and Cybersecurity School of Mathematics and Statistics School of Biological, Health and Sports Sciences School of Business Technology, Retail and Supply Chain Graduate Business School
Delivery location	City Campus and Tallaght Campus
Collaborative Partner (where applicable)	
Date of Commencement	January 2024

Section B - Awards

Award Title	Master of Science in Data Analytics
NFQ Level	9
Award Class	Major
ECTS Credits	90
Classification of award	Average Mark Band Classification ≥ 70% First Class Honours 60% - 69% Second Class Honours, First Division 50% - 59% Second Class Honours, Second Division 40% - 49% Pass
Award Title (1)	Postgraduate Diploma in Data Analytics
Exit/Embedded	Exit ☒ Embedded ☐
NFQ Level	9
Award Class	Major
ECTS Credits	60
Classification of award	≥ 70% Distinction 60% - 69% Merit, Grade One 50% - 59% Merit, Grade Two 40% - 49% Pass
Award Title (2)	Master of Science in Data Analytics with Precision Diagnostics
NFQ Level	9
Award Class	Major
ECTS Credits	90
Classification of award	Major
Award (2) Title	Average Mark Band Classification ≥ 70% First Class Honours 60% - 69% Second Class Honours, First Division 50% - 59% Second Class Honours, Second Division 40% - 49% Pass
Award (2) Title	Postgraduate Diploma Data Analytics with Precision Diagnostics
Exit/Embedded	Exit ☒ Embedded ☐
NFQ Level	9
Award Class	Major
ECTS Credits	60
Classification of award	≥ 70% Distinction 60% - 69% Merit, Grade One 50% - 59% Merit, Grade Two 40% - 49% Pass
Award Title (3)	Master of Science in Data Analytics for Sport
NFQ Level	9
Award Class	Major
ECTS Credits	90
Classification of award	Average Mark Band Classification ≥ 70% First Class Honours 60% - 69% Second Class Honours, First Division 50% - 59% Second Class Honours, Second Division

	40% - 49% Pass
Award (3) Title	Postgraduate Diploma in Data Analytics for Sport
Exit/Embedded	Exit ☒ Embedded ☐
NFQ Level	9
Award Class	Major
ECTS Credits	60
Classification of award	≥ 70% Distinction 60% - 69% Merit, Grade One 50% - 59% Merit, Grade Two 40% - 49% Pass

Section C - Programme Derogations (if required)

Derogations from Assessment Regulations/Marks and Standards already approved by University Programmes Board

Date of University Programmes Board Approval	Click or tap to enter a date.

Section D   Validation Process

Please tick the process that was followed:

Validation Panel ✓	AQEC Meeting ☐	AQEC Sub-Group ☐
Date:	Date:	Date:
5 September 2024		

Panel Members

Name	Role	Affiliation
Dr Muireann O'Keeffe,	Chairperson	Head of Teaching and Learning, Faculty of Arts and Humanities
Mr Martin Graham	External Panel Member	Director of Data, Insight & Analytics (Virgin Media); Director of AI Product Architecture (Liberty Global Group).
Dr Denis O'Shea	Internal panel member	Lecturer, School of Food Science and Environmental Health
Dr Isabelle Killane	Internal panel member	Lecturer, School of Mechanical Engineering
Dr Gráinne Hurley	Academic Quality Advisor	Academic Affairs, TU Dublin

Agenda

- 9:30am: Introductions
- 9:40am: Presentation from Programme Development Team
- 10:00am: Panel Discussion
- 11:00am: Tea/coffee break
- 11:15am: Discussion with Programme Management
- 12:15pm: Discussion with Teaching Team
- 1:15pm: Lunch (Tour of Facilities if required)
- 2:00pm: Focus on Master of Science in Data Analytics with Precision Diagnostics
- 2:45pm: Focus on Master of Science in Data Analytics for Sport
- 3:30pm: Private Panel Meeting to agree provisional report
- 4:15pm: Report to Programme Development Team
- 4:30pm: Finish

Section E - Programme Evaluation

Governance & Management		
Is the programme designed in accordance with the University's Strategic Plan, Educational Model and Quality Framework?	Yes ✓	No ☐
Comment: Alignment with the University's Strategic Plan, Education Model and Quality Framework is outlined in the Validation Document. The University's Strategic Plan section, 'Going Global', has set a target of 10% full-time students being international by 2028 and the recruitment of international students is a critical component of TU Dublin's strategic approach to increase its student numbers as part of the ongoing financial recovery plan. The Master of Science in Data Analytics has been designed to meet this recognised international need, as evidenced by the findings provided for the validation, including the fact that there is a strong demand from international students, particularly Indian and East African, for conversion programmes at postgraduate level in computing and more specifically, in the areas of Data Analytics and Artificial Intelligence. In addition, the programme is designed to provide a pan-University framework through which collaborative postgraduate pathways can be provided to students from a range of disciplinary backgrounds which chimes with the UEM approach to education, which is grounded in transformative learning opportunities and experiences for all. The facilitation of collaboration across TU Dublin is a key strategic objective for the University and is of importance to the new Faculty of Computing, Digital and Data that has, as its own objective, the need to harness the power of Computing, Digital & Data to tackle global challenges to ensure a better world for all. By enabling and supporting collaborative work with researchers and educators in other fields, the Faculty seeks to enable all academic disciplines to apply digital technology effectively to support twenty-first century research and innovation. The knowledge and skillsets developed by students on this programme, including technical skills, ethical frameworks, communication skills and alignment with the Sustainable Development Goals are globally applicable and will enable graduates to seek employment around the globe. The Master of Science in Data Analytics has been designed to embed sustainability and the Sustainable Development Goals as core features. However, the panel felt that both digital ethics and sustainability need to be made more explicit within module descriptors and that Sustainability needs to be further defined in the specialisms (Conditions 2 and 4).		

Will the proposed strategies for programme management and quality assurance ensure that the programme is well managed and continuously enhanced and is in accordance with the University's Quality Framework?	Yes ✓	No ☐

Comment:
The Quality Framework is designed to support all of the university's academic programmes and provide robust processes to assure the quality of its awards and nurture the essential graduate attributes. TU Dublin has developed Quality Assurance and Enhancement Processes that supports staff to continuously improve the TU Dublin Student Experience and enhance the University's Quality Culture. This processes are underpinned by the University's Academic Quality Framework Principles. As part of the Quality Framework, there is a requirement for all programmes to implement a Programme Team comprised of all teaching staff involved in the programme, and to assign a Programme Coordinator who assumes overall responsibility for the management of quality assurance on the programme. For the Master of Science in Data Analytics, an overall Programme Coordinator will be assigned by the School of Computer Science and additional Programme Coordinators will be assigned by the School of Biological, Health and Sports Sciences for the Master of Science in Data Analytics with Precision Diagnostics and the Master of Science in Data Analytics for Sport. The overall Programme Team and sub-teams for each specialism will meet as per the requirements of the Quality Framework on at least two occasions each academic year. The Master of Science in Data Analytics will report to the Artificial Intelligence and Data Science Discipline Programme Board. The Master of Science in Data Analytics with Precision Diagnostics and the Master of Science in Data Analytics for Sport will report to appropriate Discipline Programmes Boards in the School of Biological, Health and Sports Sciences. The panel recommend that time is set aside at intervals for interfaculty engagement in order reflect and review current and future offerings (Recommendation 5).

Awards Standards		
Are the programme aims and learning outcomes clearly written using appropriate terminology? (See TU Dublin Guidelines)	Yes ✓	No ☐
Comment:		
Are the programme aims and learning outcomes aligned to the proposed level of the award on the NFQ in accordance with applicable Award Standards?	Yes ✓	No ☐
Comment:		
Will the curricula, teaching, learning and assessment methods enable students to reach the appropriate standard to qualify for the award(s)?	Yes ✓	No ☐
Comment:		
Was the programme development appropriately informed by internal and external stakeholder input (including industry/practice, professional/regulatory bodies, and community organisations)?	Yes ✓	No ☐

Comment:
The need to meet the requirements of industry and relevant professional sectors was central to the development of this programme. A stakeholder survey was conducted from which it emerged that, in addition to technical and communication skills, there is a strong demand for graduates to have critical business acumen and the ability to solve real-world problems. This has been addressed by the programme development team in the design of several modules, in which real-world problem solving is clearly set out in the learning outcomes, including Fundamentals of

Analytics, Data Mining, Organisational Decision Making, Advanced Bioinformatics, and Sport Intelligence Platforms. The real-world context is pervasive through the capstone element of the programme as evidenced in the design of the Data Analytics Research Project module and the Data Analytics Research Project Preparation 1 and 2 modules. Furthermore, there was strong support among stakeholders for a part-time option for the programme, with as much flexibility as possible. The programme, therefore, is also being offered on a part-time basis through on-campus, online or blended delivery.

The diversity of programme types and national objectives mean that this programme is uniquely positioned to serve multiple industries/sectors through specialisation.

Has the programme been benchmarked against similar programmes nationally and internationally?	Yes ✓	No ☐

Comment:
A review of relevant programmes nationally was undertaken to fully understand the landscape of programmes in this area including Dublin Business School; University College Dublin; National College of Ireland; University College Cork; University of Limerick and the College of Computer Training, Dublin. The panel was provided with a summary of the structure and modules on these programmes.

The Master of Science in Data Analytics is distinguished in the first instance from the other related master's programmes in the Faculty of Computing, Digital and Data by its flexibility to incorporate discipline-specific modules, thus making it a University-wide programme. A second distinction for the programme relates to its focus on the application of skills to specific organisational and professional issues. This reorients the programme from the typical focus on general research skills, to one that concentrates on methods of inquiry that relate to the application of data analytics skills to enhance decision making within organisations. This is evident in the selection and design of modules on the programme which was provided to the panel.

Did the programme development take account of relevant external discipline benchmarks and Professional Statutory and Regulatory Body requirements?	Yes ✓	No ☐

Comment:
The programme development team undertook a thorough review of relevant policy documents including the National Strategy on Artificial Intelligence and the output from the Expert Group of Future Skills Needs, 'Assessment of the Skills Needed for the Deployment, Management and Regulation of Artificial Intelligence'. In addition, the Faculty of Computing, Digital and Data commissioned a market insight report from EAB Global, through which the international picture of demand for graduates in the area of Data Analytics was assessed and reported upon to the Faculty. Demand for graduates in the specialist areas of Data Analytics with Precision Diagnostics and Data Analytics for Sport was assessed through review of relevant policy documentation for those areas.

Programme Design		
Is the programme design informed by current development in the discipline and associated subject areas, having taken into consideration current trends, stakeholder feedback and market analysis?	Yes ✓	No ☐
Comment: The programme documentation highlighted the current development in the discipline and associated subject areas and stakeholder feedback (as highlighted above and captured in more detail in the validation documentation) and current trends and market analysis (as highlighted below). **Demand for MSc Data Analytic** It is evident that there is a strong and continuing skills gap in Ireland and internationally in Information and Communications Technology in general, including in the areas of Data Analytics and Artificial Intelligence. The 2022 Artificial Intelligence Skills Report from the Expert 20 Group on Future Skills Needs highlights the top skills requirements in the related areas as Machine Learning, Artificial Intelligence Applications, Data Processing and Management, and Ethics. Morgan McKinley identify Data Analyst, Data Analyst and Data Engineer among the key jobs and skills in demand for 2024 in Ireland across areas of technology. **Demand for MSc Data Analytics with Precision Diagnostics** Precision diagnostics is an exciting and rapidly evolving field of medicine that involves using customised data analytics to diagnose conditions and manage and tailor an individual patient's healthcare. The global precision diagnostics market size was estimated at US$15.60 billion in 2023 and is projected to grow at a rate of 18.4% from 2024 to 2030. Technological innovations in diagnostic tools and platforms, including Artificial Intelligence and Machine Learning algorithms, have enhanced the accuracy and efficiency of these tests).[1] **Demand for MSc Data Analytics for Sport** SportsTech is broadly the field at the convergence of sports and technology, a sector globally estimated to have been worth US$50bn in deal flow over the past five years.[2] A significant contributor to the growth of the industry is the 'continuous innovation in sports analytics driving athlete and team performance'.[3] Within SportsTech, Sports Analytics plays a significant role for athletes, coaches, fans and executives. Sports Analytics involves the collection and analysis of data relating to the sporting performance of an individual or a team leading to insights through which sporting performance can be enhanced. The SportsTech industry in Ireland has grown from 10 companies in 2009 to 85 companies in 2024, half of which are located in Dublin. An analysis of the sector by SportsTech Ireland identifies performance analytics as the dominant sector within the SportsTech industry. The opportunity for Ireland to develop further as a leader in SportsTech is amplified by the strength of expertise in Data Analytics and AI in Ireland and highlights the need for graduates equipped with the skillsets needed to support the growth of this industry.		
Will there be opportunities for students to input into curriculum design decisions in the future?	Yes ✓	No ☐
Comment: Feedback is provided to students through the assessment process, with the assessment activities designed to help shape the students' learning by following a philosophy of assessment for learning.		

---

[1] See Grand View Research, <u>Precision Diagnostics Market Size, Share & Trends Analysis Report 2024-2030</u>.
[2] See SportsTechX (2024). <u>Global Sportstech Ecosystem Report</u>, June 2024.
[3] <u>Sports Tech Ireland, Industry Report 2024</u>.

The TU Dublin Quality Assurance & Enhancement policies and procedures for all TU Dublin programmes include both a student feedback mechanism for individual modules and a requirement for student representation at all boards and committees governing the programme. Supports are also made available to both staff and students regarding ways in which the Student Voice can be used at all stages of programme design. https://www.tudublin.ie/explore/about-the-university/academic-affairs/our-student-voice/.

The panel recommend that consideration be given to hosting a symposium to disseminate student research outputs and grow the data analytics postgraduate community (Recommendation 4).

Is there a mechanism to ensure the input of external stakeholders in the ongoing development of the programme?	Yes ✓	No ☐

Comment:
The Schools involved in the development of programme have forged strong and successful university-industry relationships and regularly consult with various external stakeholders while being actively responsive to the desired skills of future graduates.

Is the programme curriculum well-structured with a logical progression of learning and development across the modules and stages?	Yes ✓	No ☐

Comment:

Are there appropriate opportunities for students to undertake work-based learning, through work placements or work-based projects or assignments?	Yes ✓	No ☐

Comment:
The Data Analytics Research Project is the capstone project for all students on this programme. The Data Analytics Research Project is not a classic dissertation project, but rather is more closely related to a Consultancy Project in which students identify a specific problem with an associated dataset, carry out a rigorous analysis and present both a client report and a research paper detailing and critiquing the process and the findings. The client for the Data Analytics Research Project can be a real client in a business or a community organisation, but this is not a requirement.

If applicable, have the relevant Blended Learning Checklists (i.e. Learning Experience Context & Programme Context) been fully completed and submitted to the Panel?	Yes ☐	No ☐

Comment:

Is the required programme and module information provided in the correct format?	Yes ✓	No ☐

Comment:
While the modules are very well written, some of the Module Learning Outcomes need to be revised to replace non-specific verbs, such as 'understand', 'demonstrate an understanding 'and 'comprehend', with measurable action verbs (Condition 1). Both digital ethics and sustainability need to be made more explicit within the module descriptors (Condition 2). Reading lists need to be reviewed to ensure that they are up-to-date (Condition 3).

Learning, Teaching & Assessment		
Is there an effective student-centred teaching and learning strategy that aligns with the University's strategies and Education Model?	Yes ✓	No ☐
Comment: All Faculties in the University have been asked to explore means through which programmes can be designed to encourage students from countries throughout the world to join domestic students on their learning journey. The Master of Science in Data Analytics has been designed to meet a recognised international need, as illustrated by the data presented in the validation documentation. The programme is designed to provide a pan-University framework through which collaborative postgraduate pathways can be provided to students from a range of disciplinary backgrounds. The facilitation of collaboration across TU Dublin is a key strategic objective for the University and is of importance to the new Faculty of Computing, Digital and Data that has, as its own objective, the need to harness the power of Computing, Digital & Data to tackle the global challenges facing society and help us all to live better, more fulfilling lives on a healthy planet. By enabling and supporting collaborative work with researchers and educators in other fields, the Faculty seeks to enable all academic disciplines to apply digital technology effectively to support twenty-first century research and innovation.		
Does the assessment strategy provide an appropriate mix of assessment types that will enable students to demonstrate that they have met the module and programme learning outcomes?	Yes ✓	No ☐
Comment: The diversity of assessment types will enable students to demonstrate their knowledge and skills and show that they have met the module and programme learning outcomes.		
Do the learning outcomes and assessment strategy ensure that academic integrity can be maintained and attempted breaches of academic integrity are minimised/easily detected?	Yes ✓	No ☐
Comment: The Faculty of Computing, Digital and Data has developed guidance regarding the use of Artificial Intelligence and Large Language Models in assessment for both lecturers and students. The National Academic Integrity Network (NAIN)28 has ongoing work in the area of artificial intelligence and academic integrity, and through the N-TUTORR (National Technological University Transformation for Resilience and Recovery) programme, a staff member from the Faculty of Computing, Digital and Data will be seconded on a part-time basis as an Academic Champion for Generative AI in Higher Education for the first semester of 2024-25. Digital Ethics is embedded in the programmes and the elective Digital Ethics module builds on the earlier coverage of ethics to explore in detail issues such as data governance, privacy and personal data, Artificial Intelligence (AI), algorithmic decision-making and pervasive technologies.		
Is there a comprehensive mapping of assessment methods and module learning outcomes and between module learning outcomes and programme learning outcomes?	Yes ✓	No ☐
Comment: The panel highlighted the need to complete the mapping of modules back to Programme Learning Outcomes in the specialisms (see Condition 4).		
Are there opportunities in all modules to provide students with timely and constructive feedback on their learning and development?	Yes ✓	No ☐
Comment: Feedback is provided to students through the assessment process, with the assessment activities designed to help shape the students' learning by following a philosophy of 'assessment for learning' (See Assessment OF/FOR/AS Learning - National Forum for the Enhancement of Teaching and Learning in Higher Education)		

Do the teaching and assessment methods consider the diversity of the student cohort?	Yes ✓	No ☐

Comment:
There is a strong demand from international students, particularly Indian and East African, for conversion programmes in computing. The Master of Science in Data Analytics enables students with diverse disciplinary backgrounds in areas such as Computing, Science, Engineering and Business to pursue a pathway towards a master's degree that will enable them to develop the knowledge and skills required to add significant value within their own disciplinary area, or elsewhere.

Industry stakeholders highlighted the need for flexibility in delivery of the programme in order to give employees the opportunity to upskill and so a part-time version of the programme will be taught through a mix of online sessions and on-campus sessions, depending on the modules taken. Students may be required to attend in-person for certain laboratory sessions and assessments, but it is expected that most lectures will be delivered online for part-time students. The Faculty of Computing, Digital and Data has substantial experience with online learning for part-time students.

The methods of assessment in use on the programme illustrates the diversity of approaches adopted and the opportunities presented to students to demonstrate their knowledge and skills in different ways.

Student Supports & Learning Environment		
Are there sufficient and appropriate resources (e.g. human, financial and physical) to support the proposed programme aims and objectives, to deliver the programme as specified?	Yes ✓	No ☐

Comment:
The programme aims to recruit 50 students onto its full-time pathway for September 2025, with this growing to 75 in 2026 and 150 in 2027. The growth of the programme will be enabled by the expansion of the programme across the University with the addition of specialisations. At least 50% of the students on the programme will be non-EU international students. As the programme scales up in projected numbers, the panel recommends that due consideration needs to be given to also increasing human and financial resources (Recommendation 1). An international student strategy for recruitment, retention, integration and alumni is also recommended (Recommendation 2).

Are there sufficient staff that are appropriately qualified and capable to support the programme delivery, from both context and pedagogy perspectives?	Yes ✓	No ☐

Comment:
The Master of Science in Data Analytics involves seven schools across three Faculties. Over time, additional schools will become part of the programme as new specialisations are added. Additional staff will be added to this team over time. The staff involved in the programme delivery are highly qualified and actively engaged, as evidenced in the detailed Curricula Vitae, provided in the Appendices section.

Are there appropriate arrangements in place to support the student experience and to monitor student performance?	Yes ✓	No ☐

Comment:
This is facilitated through the university's QA/QE processes.

Are the access, transfer and progression arrangements clearly defined and appropriate, and aligned to TU Dublin policy/strategy in this regard?	Yes ✓	No ☐
Comment: This information was provided in the programme documentation.		
Do the student supports and learning environment cater for equality, diversity and inclusivity of students?	Yes ✓	No ☐
Comment: The Schools recognise the importance of diversity and cultural mix in the recruitment of the programme, which is designed to attract a diverse intake of students including international students, full-time and part-time employees who wish to upskill, and students with undergraduate qualifications in a range of different technical and non-technical disciplines. Different pathways will be provided to accommodate students from diverse backgrounds. TU Dublin is committed to actively fostering an inclusive, diverse, safe and respectful institutional culture. This commitment is embedded in TU Dublin Strategic Intent 2030, which is informed by Sustainable Development Goal 4 - 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.'		
Is the relevant programme information clearly communicated to the students to ensure they are informed, guided and cared for?	Yes ✓	No ☐
Comment: The Student Handbook will contain all of the necessary information. The panel felt that an assessment map and calendar should be included to ensure more clarity and to guard against over-assessment (Condition 5) and that illustrative pathways for students through the programme that show cohort paths and timelines for part-time and full-time students should also be provided (Recommendation 3).		
Has the Checklist for First Year Student Success (where applicable) been fully completed and submitted to the Panel?	Yes ☐	No ☐
Comment:		

Collaborative Provision (if applicable)		
Are the roles and responsibilities of each partner clearly defined?	Yes ☐	No ☐
Comment:		
In the case of Joint or Multiple Awards, has due diligence on capacity of partner institution meeting the QA-QE requirements for the programme been undertaken?	Yes ☐	No ☐
Comment:		

Section F - Overall Recommendation

1.	**Recommend approval of programme as submitted, without amendment**	☐
2.	**Recommend approval of programme, subject to minor amendments/editorial changes to be completed as soon as possible and with recommendations for consideration.** **Note:** recommendations are attached where it is considered that the programme would benefit from particular changes, or from a review of certain aspects of the programme over a period of time, with changes made if required. While recommendations are advisory in nature, there is an expectation that all	☐

	recommendations are responded to appropriately and acted upon as appropriate.	
3.	**Recommend approval of programme subject to the fulfilment of conditions. Recommendations for consideration may also be attached.** **Note:** conditions are attached where it is agreed that changes must be made to the programme / programme documentation prior to the commencement of the programme. Conditions must be set where issues are identified that relate directly to academic standards or to University regulations or procedures. It should be clear what is required in order to meet the conditions. A new programme cannot go forward to Faculty Board for consideration/approval unless a response to the Validation Report is submitted with revised programme documentation and the Academic Quality Enhancement Committee is satisfied that all conditions are met.	☒
4.	**Do not recommend approval of programme.**	☐

Areas for commendation	
1.	The creation of this innovative programme will be of significant value to the postgraduate offerings at TU Dublin.
2.	This pan-university programme brings together the interests and expertise of 3 Faculties and 7 schools, with scope to expand.
3.	The programme is designed to address the growing skills required in the area of data analytics and data-informed decision making.
4.	The programme addresses a gap in the current academic offering as it is more industry focussed than other programmes available.
5.	Good market research was undertaken.
6.	Overall, programme and modules are described well.
7.	This is an impressive multidisciplinary applied programme which is research-led and informed by industry. It was evident that teaching staff went beyond normal responsibilities to collaborate in bringing the programme to fruition.
8.	Seeks to grow the international student market at postgraduate level for TU Dublin.

3.**Conditions of Approval**	
1.	While the modules are very well written, some wording needs to be revised in the Module Learning Outcomes, e.g., non-specific verbs such as 'understand' and 'comprehend', should be avoided and replaced with measurable action verbs (See Bloom's Taxonomy for classification of levels and associated verbs and LTA resources on Writing Learning Outcomes).
	Response: The team has reviewed all the learning outcomes for module on the programme. The following two learning outcomes in the Advanced Bioinformatics module were the only two module learning outcomes that used the term understand: - Understand the principles of bioinformatics and its significance in genomics and precision diagnostics. - Demonstrate understanding in precision diagnostic technologies, including Microarrays and Next-Generation Sequencing (NGS).

	These were be updated as follows: • Describe the principles of bioinformatics and explain its significance in genomics and precision diagnostics. • Describe in detail precision diagnostic technologies, including Microarrays and Next-Generation Sequencing (NGS). The team thanks the panel for identifying this requirement and is satisfied that the remaining learning outcomes are appropriately written.
2.	How Digital ethics and sustainability are embedded in modules need to be made more explicit within the module descriptors.
	Response: Digital Ethics and Sustainability are both highly important topics for student on this programme. Both topics have been given deep consideration throughout the design process and are embedded throughout the programme. The team recognizes that there are some cases where the documenting of the original version of the modules did not fully reflect how Digital Ethics and Sustainability were represented in the programme. To address this, all modules have been reexamined with updates made to the documentation where required. Digital Ethics is now included as a Module Learning Outcome and/or core element of the syllabus in each of the following modules: • Advanced Analytics Programming (MLO9) • Fundamentals of Analytics (MLO3) • Data Mining (MLO7-8) • Data Exploration (MLO7) • Organisational Decision Making (MLO7) • Digital Ethics (MLO1-6) • Advanced Bioinformatics (MLO1) • Sport Intelligence Platforms (MLO2) • Data Analytics Research Project Preparation 1 (MLO4) • Data Analytics Research Project Preparation 2 (MLO5) • Data Analytics Research Project (MLO7) Sustainability is now included as a Module Learning Outcome and/or core element of the syllabus in each of the following modules: • Fundamentals of Analytics (MLO4) • Orgaisational Decision Making (MLO2,4-6) • Digital Ethics (MLO6) • Current Trends in Diagnostics (MLO1) • Digital Transformation in Sport (MLO4-7) • Data Analytics Research Project Preparation 2 (MLO5) • Data Analytics Research Project (MLO7) The team is satisfied that this is an appropriate representation of both topics. Both topics are key elements in the Data Analytics Research Project module which accounts for 20 of the 90 credits for the programme, as well as the Data Analytics Research Project Preparation modules.

3.	Reading lists need to be reviewed to ensure that they are up-to-date.
	Response: The reading lists for all modules have been reviewed and updated with more recent editions where appropriate. In certain cases, older texts are deemed appropriate because of the standing and importance of the identified text within the field. In some cases, the older texts have been changed to supplemental reading with the more recent texts preferred as the recommended text.
4.	Specialisms: • Any assessment thresholds need to be removed • The exercise of mapping of modules back to Programme Learning Outcomes needs to be completed • The embedding of Sustainability needs to be made more explicit
	Response: Assessment thresholds are in the following modules, in line with the assessment practices in the School of Biological, Health and Sports Sciences: • Current Trends in Diagnostics • Omics in Precision Diagnostics • Advanced Bioinformatics • Digital Transformation in Sport Thresholds for Advanced Bioinformatics, Omics in Precision Diagnostics and Current Trends in Diagnostics were adjusted to threshold of 35 pass mark of 40 in line with the other modules in the MSc. Sustainability is now explicitly references in the Module Learning Outcomes for the following modules in the specialisms: • Current Trends in Diagnostics (MLO1) • Digital Transformation in Sport (MLO4-7) The mapping of programme learning outcomes to module learning outcomes has been updated as required.
5.	An assessment map and calendar need to be provided.
	Response: Indicative assessment calendars for six different cohorts have been added to the programme validation documentation section 10.4 and to the student handbook section 4.8.

Recommendations	
1.	As the programme scales up in projected student numbers, due consideration should be given to increasing human and financial resources.

	Response: The programme has been included in the University's Enrolment Plan as a programme that has the potential to grow substantially over time with the addition of specialisations across the University as a whole. The Schools involved recognise the importance of a fit for purpose resourcing model for this programme, and welcome the recognition for this requirement by the Panel.
2.	An international student strategy for recruitment, retention, integration and alumni is recommended.
	Response: The Schools involved have significant experience in international student recruitment, and now also have the support of the Faculty of Computing, Digital and Data Transitions Coordinator in assisting international students as they commence their studies. The Schools recognise the importance of providing a high quality experience to all students on this programme and will progress with the development of a strategy specific to this programme, as per the recommendation of the panel.
3.	Student handbook should include illustrative pathways for students through the programme that show cohort paths and timelines for part-time and full-time students.
	Response: Illustrative pathways have been added to the Student Handbook in section 4.7. Illustrative assessment calendars for six pathways have been added to the Student Handbook in section 4.8.
4.	Consideration should be given to hosting a symposium to disseminate student research outputs and grow the data analytics postgraduate community.
	Response: The Schools involved already run events such as Project Fairs and School Research Days at which the work being undertaken by students on the programme can be showcased, although the timing may present some issues. The Schools welcome the suggestion of a dedicated symposium and will explore how this may be developed and implemented.
5.	It would be beneficial to set aside interfaculty engagement time in order to reflect and review current and future offerings.
	Response: The growth of this programme on a pan-University basis through the addition of specialisation is highly important for the success of the programme and its impact on the University's postgraduate student recruitment. The Schools are in agreement with the panel that a structure needs to be established to enable discussion to take place across the University about

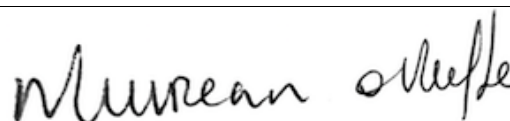|	the expansion of the programme. This will be given detailed consideration by the Schools involved in the immediate future.
6.	The pace of change is in the topic of data analytics and AI in particular is very rapid and currently at a particularly high rate. The panel recommends time is set aside for an industry consultation annually on change in the first 5 years of the program.
	Response: This recommendation is welcomed and will be addressed by the Schools involved. In addition, it is expected that a formal review of the programme will take place on a five yearly basis, and as part of this process engagement with stakeholders will be undertaken. Also an industry-based external examiner will be identified for this programme who will be asked to provide input on an annual basis.

Other matters to be brought to the attention of Faculty Board and/or University Programmes Board

Section G - Approvals

Validation Report	
This report has been agreed by the Validation Panel and is signed on their behalf by the chairperson.	
Chairperson:	
Signed:	Date: 18/09/2024

School Response	
The response to the conditions and recommendations has been agreed by the School and is signed by the Head of School.	
Head of School: Paul Doyle	
Signed:	Date: 24/09/2024

Faculty Board	
The report and response have been approved by Faculty Board	
Dean: Pramod Pathak	
Signed:	Date: 27/09/2024

University Programmes Board (Programmes of 30 ECTS or great)	
The report and response have been approved by the University Programmes Board	
Registrar:	

Signed:	Date: Click or tap to enter a date.