

H9DGAE: Data Governance and Ethics

Module Code:	H9DGAE
Long Title	Data Governance and Ethics APPROVED
Title	Data Governance and Ethics
Module Level:	LEVEL 9
EQF Level:	7
EHEA Level:	Second Cycle
Credits:	5
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Module Author:	Margarete Silva
Departments:	School of Computing
Specifications of the qualifications and experience required of staff	PhD/Master's degree in a computing or cognate discipline. May have industry experience also.
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
#	Learning Outcome Description
LO1	Critically interpret the governance and regulatory frameworks associated with the capture, processing, and stewardship of data.
LO2	Demonstrate expert knowledge and illustrate the key data lifecycle stages and reliance on these for effective information governance in real-world settings.
LO3	Analyse and evaluate the main ethical, legal, and social implications of using data-driven technologies.
LO4	Demonstrate critical awareness and interpretation of the fundamental principles and regimes of data protection and data privacy in socio-technical environments.
LO5	Demonstrate critical understanding of, evaluate, and apply the core concepts of data privacy, ethics, and governance standards and frameworks to support digital ethical decision making.
LO6	Develop and enhance interpersonal communication skills to become a successful member of a working team.
Dependencies	
Module Recommendations	
No recommendations listed	
Co-requisite Modules	
No Co-requisite modules listed	
Entry requirements	Applicants are required to hold a minimum of a Level 8 honours qualification (2.2 or higher) or equivalent on the National Qualifications Framework in either STEM (e.g., Information Management Systems, Information Technologies, Computer Science, Computer Engineer) or Business (e.g., Business Information Systems, Business Administration, Economics) discipline and a minimum of three years of relevant work experience in industry, ideally but not necessarily, in management. Previous numerical and computer proficiencies should be part of their work experience or formal training. Graduates from disciplines which do not have technical or mathematical problem-solving skills embedded in their programme will need to be able to demonstrate technical or mathematical problem-solving skills in addition to their level 8 programme qualifications (Certifications, Additional Qualifications, Certified Experience and Assessment Tests). All applicants for the programme must provide evidence that they have prior Mathematics and Computing module experience (e.g., via academic transcripts or recognised certification) as demonstrated in one mathematics/statistics module and one computing module or statement of purpose must specify numerical and computing work experience. NCI also operates a prior experiential learning policy where graduates with lower, or no formal qualifications, currently working in a relevant field, may be considered for the programme. Applicants must also be able to have their own laptop with the minimum required specification that will be communicated to each applicant through both the admissions and marketing departments.

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Module Content & Assessment			
Indicative Content			
Data Governance Data quality and provenance.. Data management.. Roles and responsibilities.. Management of data policies, processes and procedures. . Data integrity & security.. Risk management.. Models and tools for data governance.			
Privacy and Data Protection The right to privacy – constitutional and statutory protections, privacy and the European Convention on Human Rights and EU Charter of Fundamental Rights. . Common law protection. . Data Protection Regulation Scope, processing of personal data, legitimate bases, principles of data protection, sensitive data, issues of consent.. Rights, supervision and enforcement.. Data Protection in practice including international transfers, surveillance, cloud computing, and auditing.. Current reform of the area.			
Ethical Issues Pertaining to Data Ethics and Computing – examining moral problems when using the Internet - spam, censorship and free speech, anonymity offered by the Internet.. Ethical issues arising from the increasing use and pervasiveness of Information Technology and socio-technical systems. . Health technology.. Pervasive monitoring and tracking.. Image, video and sound capture.. Identity.. Perpetuity of data storage.. Transnationality.. Copyright.. IOT.			
Fairness, Accountability, and Transparency of Algorithmic Systems The meaning of fairness with respect to algorithmic systems.. Techniques and models for fairness-aware data mining, information retrieval, recommendation, etc.. Legal, social, and philosophical models of fairness.. Specification of mathematical objectives with respect to fairness.. Perceptions of algorithmic bias and unfairness.. Interventions to mitigate biases in systems, or discourage biased behaviour from users.			
Fairness, Accountability, and Transparency of Algorithmic Systems The meaning of accountability with respect to algorithmic systems.. Processes and strategies for developing accountable systems. Methods and tools and standards for ensuring that algorithms comply with fairness policies (e.g., IEEE P7003 TM).			
Fairness, Accountability, and Transparency of Algorithmic Systems The meaning of transparency with respect to algorithmic systems.. Explanations for algorithmic logic and outputs.. Trade-offs between privacy and transparency.. Tools and methodologies for conducting algorithm audits. Frameworks for conducting ethical and legal algorithm audits. Empirical results from algorithm audits.			
Assessment Breakdown			%
Coursework			40.00%
End of Module Assessment			60.00%
Assessments			
Full Time			
Coursework			
Assessment Type:	Formative Assessment	% of total:	Non-Marked
Assessment Date:	n/a	Outcome addressed:	1
Non-Marked:	Yes		
Assessment Description: Formative assessment will be provided on the in-class individual or group activities. Feedback will be provided in written or oral format, or on-line through Moodle. In addition, in class discussions will be undertaken as part of the practical approach to learning.			
Assessment Type:	Continuous Assessment	% of total:	40
Assessment Date:	n/a	Outcome addressed:	3,5,6
Non-Marked:	No		
Assessment Description: This will assess learners' knowledge, understanding and ability to appraise and address issues relating to data governance, ethics, privacy, data protection, fairness, accountability, and transparency of algorithmic systems			
End of Module Assessment			
Assessment Type:	Terminal Exam	% of total:	60
Assessment Date:	End-of-Semester	Outcome addressed:	1,2,3,4,5
Non-Marked:	No		
Assessment Description: The examination will be of two hours duration and may include a mix of: theoretical, applied and interpretation questions			
No Workplace Assessment			
Reassessment Requirement			
Repeat examination <i>Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.</i>			
Reassessment Description The repeat strategy for this module is a project submission. All learning outcomes will be assessed in the repeat project submission. This project will require learners to evaluate, appraise, and address data governance and ethical issues relating to both their own research work and other situational contexts and scenarios.			

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Module Workload				
Module Target Workload Hours 0 Hours				
Workload: Full Time				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	Classroom & Demonstrations (hours)	18	Every Week	18.00
Tutorial	Other hours (Practical/Tutorial)	12	Every Week	12.00
Independent Learning	Independent learning (hours)	70	Every Week	70.00
Total Weekly Contact Hours				30.00

Module Resources	
<i>Recommended Book Resources</i>	
Katherine O'Keefe, Daragh O'Brien. (2018), <i>Ethical Data and Information Management</i>, Kogan Page, p.344, [ISBN: 0749482044]. Anno Bunnik, Anthony Cawley, Michael Mulqueen, Andrej Zwitter. (2016), <i>Big Data Challenges</i>, Palgrave, p.140, [ISBN: 1349948845]. Herman T. Tavani. (2012), <i>Ethics and Technology</i>, Wiley, p.456, [ISBN: 1118281721]. Terrell Ward Bynum, Simon Rogerson. (2003), <i>Computer Ethics and Professional Responsibility</i>, Wiley-Blackwell, p.378, [ISBN: 1855548453]. Jeff Collman, Sorin Adam Matei. (2016), <i>Ethical Reasoning in Big Data, An Exploratory Analysis.</i>, Springer. Dama International. DAMA-DMBOK, [ISBN: 978-1634622349]. Robert F. Smallwood. (2019), <i>Information Governance</i>, John Wiley & Sons, p.544, [ISBN: 978-1119491446]. Sanjay Sharma. (2019), <i>Data Privacy and GDPR Handbook</i>, John Wiley & Sons, p.496, [ISBN: 978-1119594246]. Barocas, S., Hardt, M. and Narayanan, A.. (2019), Barocas, S., Hardt, M. and Narayanan, A., fairmlbook.org.	
<i>Supplementary Book Resources</i>	
Michael Kearns, Aaron Roth. (2019), <i>The Ethical Algorithm</i>, Oxford University Press, USA, p.232, [ISBN: 978-0190948207]. HERMAN T. TAVANI. <i>ETHICS AND TECHNOLOGY</i>, [ISBN: 978-1119355311]. West, S.M., Whittaker, M. and Crawford, K., (2019), <i>Discriminating systems</i>, AI Now. Jennifer L. Eberhardt, PhD. (2020), <i>Biased</i>, Penguin, p.368, [ISBN: 978-0735224957].	
<i>This module does not have any article/paper resources</i>	
<i>Other Resources</i>	
[Website], (2019), <i>GDPR and You</i>, http://gdprandyou.ie/ [Website], (2019), <i>EUROPEAN DATA PROTECTION SUPERVISOR</i>, https://edps.europa.eu/	
Discussion Note:	