

2024 / 25

School of Science and Computing

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Ollscoil
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an Oirdheiscirt

South East
Technological
University

Module Descriptor

Data Ethics (Computing and Mathematics)

Data Ethics (A30241)

Short Title: Data Ethics
Department: Computing and Mathematics
Credits: 5
Level: Advanced

Description of Module / Aims

This module provides students with a solid grounding in applied data ethics by considering the ethical and legal challenges surrounding contemporary data acquisition, governance and analytic practices.

Programmes

	stage/semester/status
HDip in Science in Data Analytics (WD_KDAAN_G)	1 / 1 / M

Indicative Content

- Introduction to Ethics – Morality, Ethical Theory, Justice, Legal vs Ethical
- The Concept of Privacy – Antecedents, Definitions, Models, Privacy vs Security
- Data Protection – Guidelines, Principles, Legislation, Other
- Individual Data – Identity and Individuality, Anonymity, Other
- Risk, Trust, Reputation and Harm – Impact Assessments, Attitudes and Behaviour, Other
- Informed Consent – Control, Transparency, Fair Warning, Opt In/Out, Other
- Data Acquisition – Data Research, Covert Methods, Surveillance, Other
- Data Ownership and Provenance – Public Data, Private Data, Open Data, Other
- Aggregation and Group Data – Stereotyping, Profiling, Classification, Crowd Concept, Group Privacy, Other
- Predictive Analysis – Regression, Correlation, Behavioural, Other
- Bias – Sampling, Towards the Majority, Algorithmic, Interpretation, Cognitive, Other
- Data Rights – Human Right to Privacy, Right to Erasure/Rectification, Digital Rights, Other
- Data Governance and Management - Data Residency/Sovereignty/Localisation, Retention, Deposition, Audit, Other
- The Case for Data Ethics and Analytics – Society, Sustainability, Innovation, Security, Other
- Inducing a Data Ethics Culture – Values, Manifestation, Aligning Values and Action, Privacy by Design, Algorithmic Accountability, Other

Learning Outcomes

On successful completion of this module, a student will be able to:

1. Demonstrate an understanding of the ethical challenges and potential harms posed by data analytics.
2. Demonstrate an understanding of ethical theory and terminology in a data analytics context.
3. Demonstrate an understanding of legal issues surrounding the governance and use of data for analytic purposes.
4. Evaluate and critique data analytics applications and scenarios.
5. Apply a suitable framework, or set of guidelines, for the ethical application of data analytics.

Learning and Teaching Methods

- This module will be presented using a combination of lectures and practical sessions.
- The lectures will introduce theoretical content and key terminology, while the practical sessions will use case studies, scenarios, and other activities to support problem-based learning.
- Cooperative and peer-based learning activities.
- Self-directed learning, individual research, and critical thinking.
- Students will develop a portfolio of work to demonstrate their learning over the course of the module.

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	24	24
Practical	24	24
Independent Learning	87	87

Assessment Methods

	Weighting	Outcomes Assessed
Final Written Examination	50%	1,2,3,4
Continuous Assessment	50%	
Portfolio	50%	1,2,3,4,5

Assessment Criteria

- <40%: Unable to identify, and cogently describe, the ethical challenges posed by simple data analytic scenarios, or demonstrate a basic understanding of pertinent ethical theory and terminology.
- 40–49%: Able to identify, and cogently describe, the ethical challenges posed by simple data analytic scenarios, and demonstrate a basic understanding of pertinent ethical theory and terminology.
- 50–59%: Able to identify, and cogently describe, the ethical and legal challenges posed by simple data analytic scenarios, and demonstrate a good understanding of pertinent ethical theory and terminology.
- 60–69%: Able to identify, and cogently describe, the ethical and legal challenges posed by complex data analytic scenarios, and demonstrate a good understanding of pertinent ethical theory and terminology.
- 70–100%: Able to identify, cogently describe, and critique the ethical and legal challenges posed by complex and nuanced data analytic scenarios, demonstrate an excellent understanding of pertinent ethical theory and terminology, and create an actionable plan to mitigate ethical and legal concerns in a data analytics scenario.

Supplementary Material(s)

- Bunnik, A., A. Cawley and Mulqueen, M., Zwitter, A. , eds. *Big Data challenges: society, security, innovation and ethics*. .: Springer, 2016.
- Davis, K. *Ethics of Big Data: Balancing risk and innovation*. .: O'Reilly Media, 2012.
- Hasselbalch, G. and P. Tranberg. *Data ethics: The new competitive advantage*. Ind.: Publishare, 2016.
- Loukides, M., H. Mason and D.J. Patil. *Ethics and Data Science*. .: O'Reilly Media, 2018.
- Lukings, M. and A. Habibi Lashkari. *Understanding Cybersecurity Law in Data Sovereignty and Digital Governance*. .: Springer, 2022.
- Richterich, A. *The Big Data Agenda. Data Ethics and Critical Data Studies*. London: University of Westminster Press, 2018.
- Taylor, L., L. Floridi and Van der Sloot, B., eds. *Group privacy: New challenges of data technologies*. .: Springer, 2016.

Requested Resources

- Room Type: Computer Lab