



## UNIVERSITÀ DI PISA

### LEGAL ISSUES IN DATA SCIENCE

---

#### DENISE AMRAM

Anno accademico  
CdS

2023/24  
DATA SCIENCE AND BUSINESS  
INFORMATICS  
381NN  
6

Moduli	Settore/i	Tipo	Ore	Docente/i
LEGAL ISSUES IN DATA SCIENCE	IUS/02	LEZIONI	48	DENISE AMRAM GIOVANNI COMANDE'

#### Obiettivi di apprendimento

##### *Conoscenze*

The digital economy and the digital society harness the power of big data, computational capacity, innovation and interconnection. Every human activity is mediated by information technologies. Today's technologies enable unprecedented exploitation of information, being it small or big data, for any thinkable purpose, but mostly in business and surveillance with the ensuing legal and ethical anxieties and constraints.

Algorithms are regularly used for mining data, offering unexplored patterns and deep non-causal analyses to those businesses able to exploit these advances. Yet, these innovations need to be properly framed in the existing legal background, fit in the existing set of guarantees of fundamental rights and freedoms, coherently policy related to reap the richness of big and open data and administration while empowering equally all players. For these aims data protection plays a significant role.

At the same time, artificial intelligence agents operate on big data corpora that are made of information, personal data and other materials that may or may not be protected by exclusive rights. Ownership and data governance issues are daily arising. Legal regimes are the most various, and often not similar across States. Recently, national and supranational legislators have flanked data protection laws with non-personal data protection laws, mostly oriented to strike a balance between, on the one hand, protection of and incentives for data producers and, on the other hand, the need for a free flow of such data to support further innovation.

The course aims at enabling students to work on algorithms and data mining techniques in ways that are compliant to the applicable legal framework and aware of the interplay between techniques and normative rules.

##### *Modalità di verifica delle conoscenze*

- Ongoing assessment to monitor academic progress will be carried out in the form of tests or meetings between the professor and a group of students developing their project

##### *Capacità*

- Students will know how to identify and analyse legal and ethical issues arising in data science and the information society
- Students will be able to conduct comparative research and analysis of sources related to algorithm regulation, privacy, data governance

##### *Modalità di verifica delle capacità*

- During classes, tailored practical sessions will be performed enabling students to search for sources through known databases

##### *Comportamenti*

- Students will acquire and/or develop an awareness of legal and ethical issues in data science and the information society
- Students will be able to manage the responsibility of finding legal and ethical solutions to problems posed by data science and the information society

##### *Modalità di verifica dei comportamenti*



## UNIVERSITÀ DI PISA

---

- During the class sessions, the accuracy and precision of the activities carried out will be evaluated
- During group work, the methods of assigning responsibility, management and organisation during the project phases will be evaluated

### Prerequisiti (conoscenze iniziali)

None

### Corequisiti

None

### Prerequisiti per studi successivi

None

### Indicazioni metodologiche

- lectures, with visual aids such as powerpoints/videos, etc
- practical activities in groups
- seminars will integrate the teaching
- downloading teaching materials from professor's repository
- communication between the professor and the student also via virtual offices and virtual groups meetings
- creation of work groups, in presence and virtual meetings also using email or other methods of communication
- classes are in english but questions can be asked and discussion can be also in Italian, French

### Programma (contenuti dell'insegnamento)

- The Algorithmic Society: the Classifying Society – Background and Overview, Surveillance Society – Big Other, Networks of Control, Predicting Behavior, People Analytics, Behavioural "Nudging", New Emerging Human Rights in the age of Behavioral Data Science and Neurotechnologies: Towards "Mental Privacy" and "Decision Integrity", Legal and ethical implication of computational capacity.
- Building Legally-Compliant Algorithms: Legal Pitfalls of Algorithms, The Problems of Personalization, Data Handling & Sharing, Deploying Algorithms for Human Rights—Complications & Challenges, Classification of Algorithms in the Information Society: Legal Implications and Business Applications, Exploitation of Public Sector Data, Competition Law in the Age of Algorithms, Transparency, accountability and traceability of algorithm based decision-making, Accountability in the Machine Learning Context, Technical and Legal Options to Enhance Transparency & Accountability, Legal Liability for Algorithm Autocomplete (ISP Liability), Open Data Governance, Data Ethics.
- The General Data Protection Regulation: Notions and principles, GDPR global reach and compliance, extra-eu data flows.
- Privacy in operation: Privacy-by-Design, GDPR Solutions: The Right to an Explanation, etc. Notions of Privacy in the Algorithmic Age, Privacy from the Government, Surveillance Capitalism, Governance by Proxy, Privacy from Private Entities, Privacy from Platforms, Privacy from Employers, Privacy from our Devices (IoT).
- Comparative Perspectives & Crossborder Issues: Data management for tailored purposes (healthcare, R&D&I, statistics etc.)
- Data ownership and data governance between personal and non-personal data: a comparative analysis. Closeness vs openness of data corpora. The legal regime of public-sector information (PSI Directive) and of specific non-personal data.

### Bibliografia e materiale didattico

Materials will be distributed in class and distributed on demand: [giovanni.comande@santannapisa.it](mailto:giovanni.comande@santannapisa.it); Denise Amram [denise.amram@santannapisa.it](mailto:denise.amram@santannapisa.it)

### Indicazioni per non frequentanti

Please contact professors [denise.amram@santannapisa.it](mailto:denise.amram@santannapisa.it) [giovanni.comande@santannapisa.it](mailto:giovanni.comande@santannapisa.it)

### Modalità d'esame

Written test with open question. Oral exam in case of refusals / failure.

It is not possible to pass the test if the candidate shows an inability to express him/herself in a clear manner using the correct terminology, or if the candidate does not respond sufficiently to questions regarding the most fundamental part of the course. The test will not have a positive outcome if the candidate repeatedly demonstrates an incapacity to relate and link parts of the programme with notions and ideas that they must combine in order to correctly respond to a question.

### Stage e tirocini

None

Ultimo aggiornamento 13/11/2023 09:43