DIGITAL HUMANITIES AND DIGITAL KNOWLEDGE (DHDK) – International second cycle/Master degree

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Abstract. This contribution presents the international degree programme in Digital Humanities and Digital Knowledge. DHDK offers a cross-disciplinary curriculum designed to foster close connections between humanities and the sciences of modelling, representation and processing of information and knowledge.

Abstract. In questo contributo viene presentato il corso di laurea magistrale internazionale Digital Humanities and Digital Knowledge. DHDK propone un curriculum interdisciplinare ideato per connettere scienze umane e data modelling, rappresentazione della conoscenza e data management.

Keywords: digital humanities, learning areas, professional figures, programme catalogue, stakeholders and partnerships

1 Brief presentation of the course

The international degree programme in Digital Humanities and Digital Knowledge[1] offers a cross-disciplinary curriculum designed to foster close connections between humanities and the sciences of modelling, representation and processing of information and knowledge.

The programme is delivered in English and targets those who wish to explore the field of literary, linguistic, historical and cultural studies and the arts by using models, systems and computational methods to represent and process data, information and knowledge.

The project was born at the Department of Classical Philology and Italian Studies (FICLIT) in collaboration with the Department of Computer Science and Engineering (DISI) and it is held at the School of Arts, Humanities and Cultural Heritage of the University of Bologna.

The degree started in academic year 2017-18 and it has been inaugurated with some special events:

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[1] All the information in the website: `http://corsi.unibo.it/2Cycle/DigitalHumanitiesDigitalKnowledge` and in the FB page: `https://www.facebook.com/DHDK.unibo/`.

- a welcome day for a public presentation of the degree and the staff, with a *lectio magistralis* by Dino Buzzetti;
- a distinguished lecture by Paul Eggert;
- an inaugural opening meeting, with the Rector of the University, international speakers (Paul Spence and Øyvind Eide) and stakeholders;
- a cycle of seminars on *Technologies and the Humanities* held by some experts in different fields;
- a final workshop on 'DH Methodology' within the AIUCD community.[2]

2   Objectives

The degree aims to offer a curriculum that spans a variety of subjects, in the digital humanities domain, aiming to hybridize and integrate skills and know-how with an inter- and multi- disciplinary approach. This generates competences and expertise in:

- digital management and enhancement of cultural documents;
- creation of multimedia resources in galleries, libraries, archives and museums domain;
- design of complex information systems;
- data and content analytics in the humanities;
- valorisation of the entire life cycle of cultural objects

with a renewed ability to think about the role and purpose of the humanities given the cultural framework provided by the digital technologies.

It is essential for the student to acquire the principles behind the modelling, processing and representation of information and knowledge, in order to conceive and create complex digital objects. These principles must also be accompanied by the reinforcement of the humanistic approach to data, both on a literary/philological and linguistic level and on the historical/cultural level in a wider sense. These competences must be associated with the know-how required to supervise an entire project plan:

- the legal aspects linked to the digital document;
- the economic aspects due to marketing and business needs;
- the communication aspects and in particular those in the social media context.

3   Macro-areas of learning

The educational programme aims to cover three learning areas:

- *computer science and engineering* (computational thinking; database design; web technologies; usability analysis, design and evaluation; knowledge representation and extraction; multimedia applications);
- *literary, linguistic, historical/cultural and artistic context related to digital media* (digital texts and data; digital cultural heritage; digital editing; text retrieval, analysis and mining);

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[2] Digital Humanities and Digital Knowledge (DHDK) - Inaugural Opening Events: `https://events.unibo.it/inaugural-opening-dhdk-2017`.

– *complementary: economics, law and communication* (digital marketing; business strategy; entrepreneurship; social media; digital communication and writing; web analytics; digital copyright; open access).

At the end of the degree students will be able to manage the whole cycle of design and planning of heterogeneous and complex digital cultural objects: from the concept, to the theories and methodologies to manipulate them, and their deployment by end users.

4   Career opportunities

A DHDK graduated can apply to job opportunities related to two main domains:

– *Expert in design, production and valorisation of Web resources.*The graduate is capable of creating, managing and promoting Web projects and environments, but also of designing accessible and user-friendly interfaces. The graduate is also able to handle the knowledge conveyed by all the documentation of an information system.
– *Expert in the digital management of cultural resources.*The graduate masters the life cycle of the cultural resources: from the design of a project plan to its realization, from the dissemination of a collection to its preservation. The graduate is familiar with the techniques for analysing and extracting information from datasets and corpora.

5   Professional figures in a name

The consultation with stakeholders revealed a real need of the skills, expertise and competences that the degree has in mind to deliver. New profiles are then refining the notion of professional figures, in new environments where disseminating the acquired knowledge. The degree prepares, for example, to become:

- Web project manager
- User Experience Designer
- Web information architect
- Web content specialist
- Social media expert
- Open data expert
- Digital publishing expert
- Digital library specialist
- Metadata specialist
- Data curator
- Multimedia object specialist
- Knowledge engineer
- Knowledge organizer
- Data scientist
- Computational linguist

6 Partnership

In order to guarantee internship, and to create a deep connection with stakeholders, DHDK is defining agreements with some agencies, institutions and companies in the following fields:

– Publishing
– Web and social media
– Libraries, Archives, and Museums
– Development and project management
– Digital DH centers/environments

First contacts have been defined with some important stakeholders. In detail: publishing houses (BUP – Bononia University Press; Carocci; Clueb; Il Mulino; Zanichelli); Web agencies and social media firm (BitBang; Mimulus; Nowhere; Social Factor; WebRanking); Libraries, Archives, and Museums (ICCU - Istituto Centrale per il Catalogo Unico; ICCD - Istituto Centrale per il Catalogo e la Documentazione; ICOM – International Council on Museums; MAB – Musei, Archivi e Biblioteche; IBC – Istituto per I Beni Culturali); tools/project development companies in the humanities (@Cult; Celi; Channelweb srl; Codex snc; Nemoris; Net7; Promemoria; Regesta.exe); digital centers in the DH (CCeH, University of Cologne; DDH, University of King's College, London; Fontegaia Project, Grenoble; Institut für Informatik, Leipzig, Germany; IRHT, Paris; ISTC-CNR; Swiss Institute of Bioinformatics, Vital-IT; Transylvania Digital Humanities Centre; DigiHUBB, UNED - LINHD - Digital Humanities Innovation Lab; Virtual Humanities Lab (VHL), Brown University, Providence – USA; VisualLab, Cineca); Associations (AIUCD - Associazione per l'Informatica Umanistica e la Cultura Digitale; EADH - European Association for Digital Humanities).

7 Admission requirements and procedures[3]

Admission is subject to the possession of an eligible first cycle or Bachelor degree among those listed in the Call for Admissions and proficiency in English to level B2; candidates will be required to meet specific curricular requirements and sit an interview held in English to assess their personal competencies and skills in the field of computer science and humanities.

8 Faculty[4]

The staff of DHDK is as heterogeneous as the degree offer requires. Together with professor from the University of Bologna, the DHDK aims at involving researchers from other Universities and professionals in different fields.

Today, the Faculty counts:

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[3] Call for applications A.Y. 2018/19: `http://corsi.unibo.it/2cycle/DigitalHumanitiesDigitalKnowledge/Pages/admission-requirements.aspx`

[4] It is possible to read the teachers' profile by accessing the Unibo Directory: `http://www.unibo.it/UniboWeb/UniboSearch/Rubrica.aspx?lang=en&tab=PersonePanel&filter=site%3awww.eng.unibo.it`

- Ilaria Bartolini, expertise: Database
- Fabio Ciotti, expertise: Digital Literary Studies
- Mirko Degli Esposti, expertise: Mathematics
- Daniele Donati, expertise: Administrative Law
- Simone Ferriani, expertise: Management
- Aldo Gangemi, expertise: Semantic technologies
- Paola Maria Carmela Italia, expertise: Italian philology
- Alberto Musso, expertise: Business Law
- Monica Palmirani, expertise: Philosophy of law
- Luca Pareschi, expertise: Business administration
- Silvio Peroni, expertise: Semantic publishing
- Marco Roccetti, expertise: Multimedia
- Carla Salvaterra, expertise: Roman history
- Marco Santoro, expertise: Sociology
- Fabio Tamburini, expertise: Computational linguistics
- Francesca Tomasi, expertise: Digital cultural heritage
- Fabio Vitali, expertise: Web technologies

With the collaboration of some institutions (official agreements):

- Cineca (in particular: VisualLab)
- CNR (in particular: ISTC - Istituto di Scienze e Tecnologie della Cognizione)

9 Course structure diagrams[5]

It will be useful to close this brief presentation with the degree programme, organized in areas of learning and educational activities.

9.1 1st Year

Compulsory learning activities:

Area: computer science - 30 cfu

- Programming and Data Structures (I.C.)
    1. Computational Thinking and Programming
    2. Data Modelling and Multimedia Databases
- Information Technologies and Knowledge Management (I.C.)
    1. Information Modelling and Web Technologies
    2. Knowledge Representation and Extraction
- Intangible Artifacts, Cultural Heritage and Multimedia

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[5] The programme of each activity can be read in the DHDK website: `http://corsi.unibo.it/2cycle/digitalhumanitiesdigitalknowledge/Pages/CourseStructure.aspx`

Area: literary and linguistic disciplines - 18 cfu

– Digital Text in the Humanities: Theories, Methodologies and Applications
– Scholarly Editing and Digital Approaches
– Text Retrieval, Analysis and Mining

Area: cultural heritage (libraries, archives and museums) - 12 cfu

– Library, Archive, Museum and Information Science (I.C.)
    1. Knowledge Organization and Digital Methods in the Cultural Heritage Domain
    2. Museology, Museography and Virtual Environments

9.2 2nd Year

Four activities to be chosen among (one for each area):

Area: Law and digital methods - 6 cfu

– Digital Copyright and Related Rights
– E-Democracy, E-Government and E-Citizenship
– Open Access and Digital Ethics

Area: Management and organization - 6 cfu

– Business Strategy and Innovation in Cultural Industries
– Digital and Web Marketing
– Entrepreneurship

Area: Communication and social media - 6 cfu

– Social Media Technologies
– Web Analytics
– Web Writing and Digital Storytelling

Area: Computing and the humanities - 6 cfu

– Computational Linguistics
– Digital Humanities: Sources and Methods
– Digital Sociology
– Models of Textual Data
– Semantic Digital Libraries
– Usability and User Experience

One activity to be chosen among - 6 cfu:

– Internship
– Seminars
– Laboratory

Eligible courses among Unibo teachings - 12 cfu

Final examination - 18 cfu One activity to be chosen among:

- Final examination (18 cfu)
- Final examination (6 cfu) with Internship (12 cfu)
- Final examination (6 cfu) with Internship (6 cfu) and Preparation for the final examination abroad (6 cfu)
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- Final examination (6 cfu) with Internship abroad (6 cfu) and Preparation for the final examination abroad (6 cfu)
- Final examination (6 cfu) with Preparation for the final examination abroad (12 cfu)