Main information on the course

Course name	**Interaction with Intelligent Systems**	
Degree	Computer Science	
Academic year	2024/25	
European Credit Transfer and Accumulation System (ECTS), in Italian Crediti Formativi Universitari (CFU)		3+1+1 CFU (each CFU corresponds to 25 hours (h) of student's time); CFU are of type T1, T2 or T3 T1 = 8 h lecture + 17 h individual study T2 = 15 h practice + 10 h individual study T3 = 25 h individual study
Settore Scientifico Disciplinare	INF/01	
Course language	Italian/English	
Course year	First/Second/Third	
Course period	First Semester/Second Semester - exact dates can be found in the didactic regulations	
Course attendance requirement	None, but it is highly recommended to attend classes	
Website of the Degree	https://www.uniba.it/it/ricerca/dipartimenti/informatica/didattica/corsi-di-laurea/computer-science/computer-science	

Teacher

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e-learning platform	https://elearning.uniba.it/
Teacher's homepage	ivu.di.uniba.it/people/lanzilotti.htm
Office hours	Thursday 13:30 - 14:30 by appointment

Syllabus

Course goals	Artificial Intelligence (AI) will radically change our lives and society. This transformation, which has already begun, is likely to be the most profound and rapid humanity has ever experienced. There is general agreement that AI will bring many new opportunities and that most changes are likely to be positive. It is also widely recognized that there are many risks associated with the development of AI that need to be managed very carefully. Given this scenario, future AI specialists will need to be aware of the potential ethical and practical issues of this type of system and acquire the theoretical competencies and methodological skills to design them properly. To achieve this goal, a perspective will be adopted that considers users and their needs in order to enable them to understand and control AI-based technologies.
Prerequisites/requirements	There is no mandatory requirement, but it is better if students know the basic elements of Human-Computer Interaction (HCI).
Course program	**1. Basic concepts of HCI** ● Interaction design ● Usability and User eXperience (UX) ● Human-centred design **2. Data gathering techniques** ● Interviews ● Questionnaires

	● Focus groups ● Observation **3. Quantitative and qualitative data** ● Analysis of qualitative and quantitative data ● Descriptive statistics ● Inferential statistics **4. Evaluation studies** ● User testing ● Field studies ● Controlled experiments **5. Human-Centred Artificial Intelligence (HCAI)** ● HCAI Framework ● Design Metaphors ● Governance Structure **6. Artificial Intelligence vs Intelligence Augmentation** ● Augmentation vs automation ● Control and Intervention UIs ● Design Principles for Intervention User Interfaces ● Bias & explanations **7. Design of user interfaces for intelligent systems** ● Principles, guidelines, heuristics for intelligent systems, ● Google's design guidelines, ● Microsoft design guidelines **8. Methods for evaluating intelligent systems**
Books of reference	● Shneiderman, B. Human-Centered AI. OUP Oxford, 2022. (textbook) ● Russell, Stuart. Human compatible: Artificial intelligence and the problem of control. Penguin, 2019. ○ Part I ● Lazar, J., Feng J.K., Hocheiser, H. Research Methods in Human-Computer Interaction, 2005, Morgan Kaufmann Publisher, 2nd Edition, 2017. ○ Chapters 2, 3, 4 Students who wish to do so can borrow the textbooks from the Library. It may be convenient to check their availability through the University Library System at https://opac.uniba.it/easyweb/w8018/index.php? and contact the library to arrange the loan.
Notes to the books	On the e-learning platform, the teacher provides students with the slides used in the classroom and any other teaching materials to support the classes.

Organization of the didactic activities

Hours				
Total	Lectures	Practice sessions	Project work	Individual study
150 hours	32 hours	15 hours	25 hours	78 hours
CFU/ETCS				
6 CFU	4 CFU	1 CFU	1 CFU	

Teaching methods

	Frontal lessons with slides that showcase examples to illustrate the topics covered. Practical exercises on using various principles and techniques presented in class through individual assignments.

	A project to be carried out, preferably in groups, where students put into practice the concepts presented in class. Non-attending students can work individually by making arrangements with the teacher. The e-learning platform is used for the distribution of materials and interactions between the teacher and students during and after the course.

Expected learning outcomes	
Knowledge and understanding	The main expected learning outcome is knowledge related to: • principles, paradigms, methodologies, techniques, and technologies fundamental to the design of interaction between intelligent systems and the users • quality characteristics that are significant from the user's perspective, particularly usability and User eXperience (UX). Students acquire this knowledge through both frontal classes and potential participation in specific seminars, as well as through individual exercises and laboratory work. These activities allow them to apply and verify what they have learned, gaining awareness of their understanding and how to improve it.
Applying knowledge and understanding	To enable students to apply the acquired knowledge, they engage in: • individual exercises and laboratory work. • a project, in which they must apply some of the techniques presented in class, selecting the most suitable ones for the specific case. The assessment of the in-class exercises and the project contributes to the final evaluation of the student and, consequently, to the grade obtained in the proficiency exam.
Other skills	*Making judgements* An important objective of the course is for the student to achieve significant judgment autonomy regarding 1) compromise choices concerning the qualities of the software to emphasize in the product to be developed; 2) the management of issues related to the use of design and evaluation techniques for usability and UX during the software development process. *Communication* Students are encouraged to work in groups and are often invited to present the results of exercises completed independently or in groups to develop their communication skills. For this purpose, students must also develop group case studies, where they apply some of the techniques they have learned, potentially selecting those they consider most appropriate (based on their judgment autonomy). For students attending, the presentation of case studies occurs during the semester; for non-attending students, it is part of the oral exam and allows them to demonstrate their communication skills by explaining the work done, possibly using slides they have prepared, following the teacher's instructions. *Learning skills* To stimulate the ability to learn independently, students are advised to explore other texts that delve into specific topics in addition to the main textbook.

Assessment

Assessment methods

To assess the student's acquired knowledge, as well as their judgment and communication skills, along with their ability to learn, the project and panels conducted during the course will be evaluated based on how they were performed, the appropriateness of the techniques used, the originality of solutions, clarity, and synthesis skills evident in the produced documentation (written report and/or slide presentation).

Project and panels equally contribute to the overall exam assessment; the evaluation also considers the student's active and independent participation in classroom discussions, exercises, and other activities during the course.

NOTE: The student who wishes to take their exam in a session must always register on ESSE3 by the deadline, usually three days before the written test date.

Evaluation criteria

Knowledge and Understanding Skills
The student must demonstrate the ability to use appropriate methodologies to design, develop, and evaluate intelligent systems, assess the correct application of the techniques used, and draft clear and comprehensive documentation.

Applied Knowledge and Understanding Skills
The presentation of the project and discussions during panels are evaluated to verify the student's acquired competencies, synthesis ability, clarity of expression, the capacity to make meaningful comparisons between different methodologies, techniques, and technologies adopted, and to express a critical judgment.

Judgment Autonomy
The student should be capable of applying appropriate solutions to design human-centered intelligent systems.
The presentation of the project is assessed to verify the student's acquired competencies, synthesis ability, clarity of expression, the capacity to make meaningful comparisons between different methodologies, techniques, and technologies adopted, and to express a critical judgment.

Communication Skills
The student should be able to produce clear documentation containing the necessary information for the developed software system.

Learning Skills
The student must demonstrate the ability to deepen concepts through self-learning by studying the material provided by the teacher and the ability to autonomously complete the educational path outlined in the reference text, in addition to the content specified in the teaching program.

Measurements and final grade

Grade	Descriptors
< 18 insufficient	Fragmented and superficial knowledge of the content, errors in applying concepts, deficient description.
18 - 20	Adequate but general knowledge of the content, simple description, and uncertainties in applying theoretical concepts.
21 - 23	Adequate but not in-depth knowledge of the content, ability to apply theoretical concepts, and ability to present the content straightforwardly.

24 - 25	Adequate and extensive knowledge of the content, reasonable ability to apply the knowledge, and the ability to present the content in a structured manner.
26 - 27	Precise and comprehensive knowledge of the content, good ability to apply the knowledge, analytical skills, clear and accurate description.
28 - 29	Extensive, thorough, and comprehensive knowledge of the content, adept application of the knowledge, strong analytical and synthesis skills, confident and accurate description.
30 30 e lode	Pervasive, thorough, and comprehensive knowledge of the content, well-consolidated ability to apply the knowledge, excellent analytical, synthesis, and interdisciplinary linking skills, and mastery of description.

Further information

Students are advised to rely exclusively on information/communications provided on the official websites of the Department of Computer Science or on social groups only if they are established and administered solely by the instructors of the respective courses:

- https://www.uniba.it/it/ricerca/dipartimenti/informatica/didattica/corsi-di-laurea/corsi-di-laurea
- https://www.uniba.it/it/ricerca/dipartimenti/informatica
- https://elearning.di.uniba.it/

Course programs are available here:

- https://programmi.di.uniba.it/

The information that all students should be aware of is outlined in the Didactic Regulations and Study Plans, available on the website:

- https://www.uniba.it/it/ricerca/dipartimenti/informatica/didattica/corsi-di-laurea/corsi-di-laurea

Students are advised to be cautious about information and materials circulated on unofficial websites or social groups, as they often prove unreliable, incorrect, or incomplete. For any doubts, students should request a meeting with the instructor following the specified office hours.

Link to the course on the department's ADA e-learning platform: https://elearning.uniba.it/