Term 1: September-December 2026
University of Murcia

CORE MODULES (21 ECTS)

- Human multimodal communication (6 ECTS)
- Methods in multimodal data science (6 ECTS)
- Professional impact I (3 ECTS)
- One of the following modules (6 ECTS):

  Statistics and computing **OR** Advanced statistics and computing **OR** Language and cognition

Human multimodal communication (6 ECTS)

This course will offer a general introduction to the field of multimodal communication. The aim is to equip students with the necessary basic background knowledge of the field to multimodality by offering a general perspective to the main theories and applications in research. The students will acquire the required knowledge to undertake more specialized courses at later stages in the MA devoted to the study of specific modalities, the application of some of the theories in research, the creation of new tools in multimodal communication and real-world applications of multimodal research. In this way, the course favors a broad, panoramic perspective into the field and the integration of modalities such as language, gesture, image, or prosody, rather than a more detailed look at each of these modes of communication. The object of the course will be multimodal communication in general. Combinations of patterns from various modalities and examples from a wide array of world languages will be used.

Methods in multimodal data science (6 ECTS)

This course will offer a general introduction to the main tools and methods that are currently used in the data-based study of human multimodal communication. The aim of this course is to provide students with the basic skills to engage with a wide range of tools and software that will be vital in later specialized courses. Students will be introduced to the main types of methods: experimental in lab settings, corpus based on video and audio datasets, and fieldwork. They will acquire basic transversal skills ranging from command-line familiarity for programming (basic Linux shell commands), experimental design, data management, (data structure and formats), ethics in data management, and specialized software for research into multimodal communication (ELAN, MULTIDATA, Praat, PsychoPy, among others). The course will combine both the formal description and the basic guidelines of the different methods and tools together with their application in practical cases. The course will favor a general, introductory approach to these methods, preparatory for later courses).

Professional impact I (3 ECTS)

This course will present students with the main strategies and tools for developing a strong professional impact in academic and professional contexts. The aim is to equip students with the skills needed to communicate effectively, present their work confidently, and build a professional presence. Students will acquire foundational knowledge in areas such as academic and professional communication (e.g., structuring a clear argument, tailoring communication to different audiences), presentation skills (e.g., design and delivery of effective presentations), networking strategies (e.g., establishing professional connections,), self-presentation (e.g., CV writing, personal statements, professional portfolios) and writing (e.g. grant writing guide) skills. They will also learn how to reflect critically on their own professional goals and to apply strategies that enhance their visibility and credibility in their chosen field. The course will consist of interactive sessions combining theoretical insights with practical exercises, enabling students to practice and apply the tools introduced.

Statistics and computing (6 ECTS)

This course will provide an introduction to the main statistical methods used in the analysis of experimental and numerical data. The aim is to equip students with the basic skills needed to describe and interpret data through a variety of approaches. Students will acquire foundational knowledge in measures of central tendency and dispersion, data visualization techniques, treatment of extreme values, data distribution, and data transformation. They will also learn to distinguish between different types of variables (e.g., categorical, ratio scale, proportions, frequencies), to apply the principles of hypothesis testing, and to create well-structured data files (e.g., using spreadsheet software). In addition, students will practice summarizing data sets with appropriate descriptive statistics and using the software R to produce diagrams and conduct statistical analyses. No previous knowledge of R will be required: only the basic knowledge of statistics and data-based methods mandatory for applying to MULTICOM.

Advanced statistics and computing (6 ECTS)

This course will introduce students to the principles and practices of statistical analysis through a combination of lectures and practical exercises. The aim is to develop the skills needed to prepare, analyze, and report data in a clear and scientific manner. Students will learn to apply the necessary modifications to datasets, to select and calculate suitable descriptive statistics, and to choose statistical models that either provide an adequate fit or address the research questions under investigation. They will also acquire the ability to follow up initial models with additional analyses when required and to present their findings in a precise and well-structured style.

Language and cognition (6 ECTS)

This is an intensive course of guided, self-paced study, geared towards students who have been waived the statistics & computing courses but need to fill-in gaps in areas such as semantics, pragmatics, phonetics, general linguistics, or the cognitive sciences related to language. Students taking this course will be pre-assessed to identify their individual needs to comply with the advanced background in language, communication, and thought required at the end of term 1. Individual needs will be addressed through both guided study and joint activities. The course will mainly take the form of an active seminar based on reading assignments, with oral presentations and direct interaction between students and faculty. There will also be tutoring sessions in small numbers and a limited number of lectures.

ELECTIVE COURSES (9 ECTS)

- Studying the multimodal flow of language (6 ECTS)
- Management and business (6 ECTS)
- Trends in multimodal data science UMU (3 ECTS)
- Trends in multimodal data science FAU (3 ECTS)
- Free-choice course at the University of Murcia, outside the MULTICOM offer (6 ECTS max.)

Studying the multimodal flow of language (6 ECTS)

A hands-on research course on real case-studies inspired in recent or ongoing funded research projects at UMU, with the opportunity of participating in activities leading to publishable research results, and to collaborate in ongoing research projects. Students will collaborate closely with experienced researchers, learning to build and curate video datasets for the study of multimodal behaviors in relation with specific linguistic patterns (phonetic variation, grammatical constructions, syntactic structures, semantic distinctions, pragmatic functions). Through user-friendly interfaces such as the MULTIDATA platform (https://multi-data.eu), students will analyze data with various computational tools and statistical and machine-learning techniques. No previous technical, statistical, or methodological knowledge will be required, beyond what will be taught simultaneously in the methods and statistics courses. An introduction to basic tenets and research questions will be followed by hands-on demonstrations for data gathering, as well as by data analysis sessions and joint discussions of results and their relevance.

Management and business (6 ECTS)

Crash course on managerial skills: team building, personal communication, social entrepreneurship, industry-specialized conferences, financial reporting and analysis, economic environment and country economic analysis, management accounting, leadership of people and change, strategic marketing, negotiation, creativity and ideation, influence and persuasion, government and sustainability,

entrepreneurial venturing including start-up and spin-off development, creating value, digital transformation, leadership and uncertainty, or career planning with a management and business-administration component.

Trends in multimodal data science UMU (3 ECTS)

Online. University of Murcia Faculty. This course will introduce current trends and emerging approaches in multimodal data science. The aim is to familiarize students with recent developments in methods, tools, and applications, and to provide a framework for critically evaluating new research. The specific area of study that will be covered in the course will change according to the availability of the invited teaching staff and their expertise. Topics include (but are not limited to) the study of pioneering advanced data collection techniques (e.g., multimodal sensors, motion caption devices, virtual reality), innovative data analysis methods (e.g., machine learning for multimodal data, automated annotation), application of multimodal research in education (e.g. multimodality in developmental psychology). The course will combine theoretical discussions of emerging trends with practical examples and case studies, enabling students to apply these approaches to real-world multimodal datasets. This course is offered in terms 1 and 3, which allows both first- and second-year students to take it. It is not required to have attended any of the other courses in Trends in multimodal data science.

Trends in multimodal data science FAU (3 ECTS)

Online. FAU faculty. This course will introduce current trends and emerging approaches in multimodal data science. The aim is to familiarize students with recent developments in methods, tools, and applications, and to provide a framework for critically evaluating new research. The specific area of study that will be covered in the course will change according to the availability of the invited teaching staff and their expertise. Topics include (but are not limited to) the study of pioneering advanced data collection techniques (e.g., multimodal sensors, motion caption devices, virtual reality), innovative data analysis methods (e.g., machine learning for multimodal data, automated annotation), application of multimodal research in education (e.g. multimodality in developmental psychology). The course will combine theoretical discussions of emerging trends with practical examples and case studies, enabling students to apply these approaches to real-world multimodal datasets. This course is offered in terms 1 and 3, which allows both first- and second-year students to take it. It is not required to have attended any of the other courses in Trends in multimodal data science.

Free-choice course at the University of Murcia, outside the MULTICOM offer (6 ECTS max.)

Students are expected to obtain all necessary credits from the master's own offer. However, individual demands for courses locally offered at the University of Murcia will be considered on a case-by-case

basis. Such courses should be of clear theoretical or methodological relevance, and well integrated into the student's degree and career plans. They will not be language courses. All students will be encouraged to take an extra course in Spanish as a foreign language from the UMU Language Services, as an extracurricular activity, not for credit, with tuition covered for MULTICOM-funded students.