| SINGULAR COURSE UNITS 2024-2025 | | | | | | | | | | | |
|--|--|--|---|--|---|-------------------------|--|--|------|------|------------|
| Name | Programme | Coordinator | Overview | Eligibility | Number of Students (Max./Min.) | Application Deadline | Registration Deadline | Starting Date | Fee | ECTS | Language |
| Introduction to informatics | Master Programme in Medical Informatics | Nuno Ricardo da Silva Guimarães | Objectives: Provide the student with the basic concepts about informatics and Computer Science. Comprehend the fundamentals about computer architecture, operating systems, computer networks, database systems, algorithms and programming. Have a critical perspective about the past, the present and the future of informatics. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 6 | Portuguese |
| Medicine and health systems | Master Programme in Medical Informatics | José Alberto da Silva Freitas and João Vasco Santos | Objectives: Learn the fundaments of medicine (intervenient, normal and disease concepts, clinical method and decision), health systems and current healthcare providing. Management and coding of clinical information and production of indicators. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 6 | Portuguese |
| Interactive systems in health | Master Programme in Medical Informatics | Hélder Filipe Pinto de Oliveira | Learning outcomes: - Understand the process of design and development of interactive systems in health; - Know the state of art of interactive technologies; - Develop the ability to design and evaluate interactive systems that use medical signals and images. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 6 | Portuguese |
| Scientific research and communication | Master Programme in Medical Informatics | Cláudia Camila Rodrigues Pereira Dias and Matilde Filipa Monteiro Soares | Objective: Provide the students with knowledge and skills in the design, production and dissemination of scientific research in medical informatics. Skills: Define and plan research studies in medical informatics; - Find information on electronic databases of biomedical knowledge; - Write and submit for review, original and review scientific articles; - Produce scientific oral presentations and posters; - Produce and describe descriptive statistic data analyses and statistical inference. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 6 | Portuguese |
| Telemedicine and e-health | Master Programme in Medical Informatics | Miguel Tavares Coimbra | This unit aims that the student acquires the following concepts: basic understanding of communication networks and their main protocols; information technologies used in healthcare; the various telemedlicine branches and different considerations in its implementation; the latest development in health technologies (from the ICT point of view); real world examples of telemedicine usage. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 6 | Portuguese |
| Clinical decision support systems | Master Programme in Medical Informatics | Pedro Pereira Rodrigues and Inês Dutra | The main objective of this subject is to provide necessary and general concepts of clinical decision support systems to students. As such, we expect them to be able to: define strategies for clinical decision support; identify models for the clinical decision support; interpret and evaluate classic clinical decision support systems; interpret and evaluate advanced clinical decision support systems; design, implement and evaluate decision support systems; develop critical thinking. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 6 | Portuguese |
| Health information systems and electronic health records | Master Programme in Medical Informatics | Luís Miguel dos Santos Ferreira and Inês Ribeiro Vaz | Aim: provide the students with knowledge and skills to select, design and manage health information systems and electronic health records. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 6 | Portuguese |
| Evaluation Methods in Medical Informatics | Master Programme in Medical Informatics | Tiago António Queiros Jacinto and Rute Almeida and João Carlos Menezes de Magalhães | The main objectives are: to understand the need and the difficulty of assessing health information systems, as well as the different perspectives and needs assessment; acquire notions of how to evaluate and select the different valuation models applicable to Medical Informatics (MI): understand basics of evaluation methodology; describe different types of studies, their applications and limitations; describe the different steps for the development or adaptation and evaluation of a measuring instrument; acquire notions about preparing a study proposal and know the process of its planning, acquiring experience in the preparation and reporting of the results of an assessment in MI; gained experience in critical appreciation of evaluation studies in MI. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Måx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 3 | Portuguese |

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| Informatics Security | Master Programme in Medical Informatics | João Paulo da Silva Machado Garcia Vilela | This course offers an introduction to computer security in both theory and practice. Students will develop the skills necessary to formulate and address the security needs in personal and organizational environments. The course will begin with a description of security goals and mechanisms, motivated by recent security incidents. Topics will include cryptography, authentication, secure communications, secure storage and data publishing, access control and practical examples of these technologies. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 3 | Portuguese |
| Quality and Management Indicators in Healthcare | Master Programme in Medical Informatics | José Alberto da Silva Freitas and Francisco Nuno Rocha Gonçalves | This curricular unit will discuss topics related to the definition and use of indicators, and also concepts of Health Economics. This unit aims to empower students with the necessary knowledge and skills to understand the importance of indicators for health management, define and implement performance and quality indicators, identify key indicators at the various levels of health care, be familiar with tools for performance and quality measurement in healthcare, understand the mechanisms for hospital financing, understand relevant concepts in Health Economics, be able to demonstrate the application of methods for economic analysis in the area of health, know the main methods of health economics evaluation, know how to apply theoretical knowledge to practical cases. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 3 | Portuguese |
| Data Mining in Healthcare | Master Programme in Medical Informatics | Pedro Pereira Rodrigues and José Alberto da Silva Freitas | In this curricular unit, machine learning methods will be addressed for the knowledge discovery in data (data mining) in the health area. This unit aims to empower students with the necessary knowledge and skills to: identify problems where data mining techniques could be applied; to apply data modeling methods, and specifically to apply machine learning techniques; to be able to interpret results in the context of practical medicine and clinical research in health services. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 3 | Portuguese |
| Clinical Information models and communication standards in healthcare | Master Programme in Medical Informatics | Pedro Marques and João Filipe Almeida | This course aims to discuss health information exchanges (HIEs) between clinical and public/population health data systems, to discuss the main categories and HIT standards and to discuss the standards harmonization process. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 3 | Portuguese |
| Probabilistic Graphical Models | Master Programme in Medical Informatics | Pedro Pereira Rodrigues | This unit aims to empower the students with necessary knowledge and skills to use modern methods of probabilistic reasoning for biomedical problems, more specifically regarding theory and practice of Bayesian networks for interdependencies exploration and clinical decision support. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 3 | Portuguese |
| Signal and image processing | Master Programme in Medical Informatics | Hélder Filipe Pinto de Oliveira | Objectives: - Understand the processes for converting signals and images to the digital domain - Learn medical signal and image processing algorithms - [Advanced] Implement medical signal and image processing algorithms | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 3 | Portuguese |
| Programming | Master Programme in Medical Informatics | Nuno Ricardo da Silva Guimarães | This course aims to introduce students to programming using the R language. The goal is to explore some of the features that this language offers for: data analysis, through manipulation, summarization, and visualization of data; and reporting through the generation of dynamic reports. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 3 | Portuguese |
| Bioinformatics | Master Programme in Medical Informatics | Miriam Seoane Santos | The goal of this course is that students understand some of the most relevant problems and tasks in bioinformatics for the analysis of molecular data. Particular emphasis will be given to the analysis of biological sequences. Students will acquire knowledge on the methods, tools and databases that are most appropriate for each task. | Physicians, Nurses, Radiologists, Pharmacists, Informatics Engineers, Computer Scientists and other Health or Informatics Professionals | Máx 3 singular course units students; Min. 8 MIM Students | Not applicable | Two weeks before the start of UC | The schedule will be published at https://mim.med.up.pt/calendario/ | 260€ | 3 | Portuguese |