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| SUBJECT: Personalized Medicine | | |
| MASTER DEGREE: Information & Health Engineering | ECTS: 3 | QUARTER: 2nd |

| TIMETABLE FOR THE SUBJECT | | | | | | | | |
|---------------------------|---------|---------------------------------------|----------------|---|--|--|-----------------|-----------------------|
| WEEK | SESSION | DESCRIPTION OF EACH SESSION | GROUP (X mark) | | Indicate if a different lecture room is needed (computer, audiovisual, etc.) | HOMEWORK PER WEEK | | |
| | | | 1 | 2 | | DESCRIPTION | ATTENDING HOURS | HOMEWORK Max. 7H/WEEK |
| 1 | 1 | Introduction to personalized medicine | X | | | Definition, mission and vision for personalized and precision medicine and related concepts. (Study) | 1,5 | 3,25 |
| 2 | 2 | '-Omics' technologies (1) | X | | | Instrumentation, what data are generated and what information is carried out (Study & practical exercises) | 1,5 | 3,25 |
| 3 | 3 | '-Omics' technologies (2) | X | | | Focus on Next Generation Sequencing (Study & practical exercises) | 1,5 | 3,25 |
| 4 | 4 | '-Omics' technologies (3) | X | | | Extraction of information using Machine Learning and Deep Learning. (Study & practical exercises) | 1,5 | 3,25 |
| 5 | 5 | Lab session | X | | Lab | Extraction of information from Next Generation Sequencing data (Practical computer implementation) | 1,5 | 3,25 |



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| 6 | 6 | -Images of the body and 'radiomics' (1) | X | | | Overview of the technologies (Study & practical exercises) | 1,5 | 3,25 |
| 7 | 7 | Images of the body and 'radiomics' (2) | X | | | How to implement 'radiomics' in practice (Study & practical exercises) | 1,5 | 3,25 |
| 8 | 8 | Lab session | X | | Lab | Prediction of response in cancer using 'radiomics' (Practical computer implementation) | 1,5 | 3,25 |
| 9 | 9 | Integration of '-omics' with other data | X | | | Integration of '-omics' data, medical image data and clinical data Role of artificial intelligence, natural language processing and clinical history digitalization (Study & practical exercises) | 1,5 | 3,25 |
| 10 | 10 | Lab session | X | | Lab | Patient stratification on a lung cancer setting through the integration of medical images and clinical data (Practical computer implementation) | 1,5 | 3,25 |
| 11 | 11 | Lessons learned about personalized medicine in the research setting | X | | | Novel applications not integrated yet in the research setting (Seminar) | 1,5 | 3,25 |
| 12 | 12 | How to use personalized medicine in the clinical setting? (1) | X | | | Oncology and hematology (Seminar) | 1,5 | 3,25 |
| 13 | 13 | How to use personalized medicine in the clinical setting? (2) | X | | | Psychiatry and infectious disease (Seminar) | 1,5 | 3,25 |
| 14 | 14 | Future perspectives in personalized medicine | X | | | Novel insights and perspectives (Student presentations) | 1,5 | 3,25 |



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| TOTAL HOURS | | | | | | | | 21 | 45.5 |