



PROMISE 2021

Predictive medicine

Target students: 3rd - 5th year students of health sciences

Teaching language: English

Teaching team: Ružica Tokalić, Adam de Graff, Angela Bauch, Ozren Polašek, Rosa Karlić, Nada Božina, Marina Martinić Kavur, Caroline Hayward, Anita Horvatić, Damjana Rozman, Miroslav Radman, Edvin Brusač, Tamara Milošević

Student workload: 50 – 60 hours

Estimated workload for PROMISE Predictive Medicine module (total 55:51:57)						
	Week 1	Week 2	Week 3	Week 4	Final Week	DESCRIPTION
COMPULSORY VIDEOS						
<i>Number of compulsory videos</i>	6	7	8	5	0	
<i>Duration of compulsory videos (min)</i>	0:57:43	1:23:18	1:32:35	1:10:23	0:00:00	
<i>Workload for compulsory videos (min)</i>	2:53:09	4:09:54	4:37:45	3:31:09	0:00:00	1 min video = 3 min workload
COMPULSORY READING MATERIALS						
<i>Number of compulsory reading materials</i>	4	1	3	1	0	
<i>Number of pages of compulsory reading materials (page)</i>	17	3	8	12	0	
<i>Workload for compulsory reading materials (page)</i>	2:50:00	0:30:00	1:20:00	2:00:00	0:00:00	1 page text = 10 min workload
ASSIGNMENTS						
<i>Workload for quiz (min)</i>	1:00:00	1:00:00	1:00:00	1:00:00	2:00:00	
<i>Workload for individual assignment (min)</i>	0:00:00	2:00:00	0:00:00	0:00:00	0:00:00	
<i>Workload for group assignment (min)</i>	2:00:00	2:00:00	4:00:00	4:00:00	8:00:00	
<i>Workload for transversal activity (min)</i>	2:00:00	2:00:00	0:00:00	0:00:00	2:00:00	
TOTAL WORKLOAD (min)	10:43:09	11:39:54	10:57:45	10:31:09	12:00:00	2 ECTS = 60 h workload

Brief description of the course

Predictive Medicine Module is the fourth among the four online modules covering personalized, participatory, preventive, and predictive medicine, each module presenting the topic considering responsible research and innovation principles. In this fourth module we present the basic principles of different -omics and how they can be applied in predictive medicine.

Contents

Introduction to predictive medicine

Responsible research and data sharing

Models and AI in predictive medicine

Hypothesis-free science

Different -omics data

Multi-omics integration and systems medicine

Pharmacogenomics

Age and age-related diseases



Teaching methodology

Pedagogical videos, expert videos, written material complementing the video topics, links to selected materials existing online, and selected scientific publications will be available in the online learning platform. In addition to the materials, every week there will be individual assignments to put into practice the contents and the skills of the course. There will be a group project to be carried out during the 4 weeks of the course. During the time of the course, students can ask questions via forum to the course moderators. Course moderators monitor student work and support the students if needed.

Assessment

Weekly quizzes (weeks 1-4): There's a quiz students need to take each week after finishing studying all the required materials. Weekly quizzes will give students 20% of total points (each quiz 5% of total points).

Final quiz (final week): In the last week of the module, students are expected to solve the final quiz which will test their understanding of all topics covered during the module. Students need 60% to pass, and the pass earns 15% of the total points.

Group assignment: Recognize RRI principles and omics technologies in P4 medicine projects (week 1)

This is a group assignment where students will need to evaluate Horizon Europe research projects with P4 medicine topics. Students will need to write a short essay and discuss each of the four RRI dimensions used in the project. This activity can earn them 10% of their final points.

Individual assignment: A day in the life of a bioinformatician (week 2)

In this individual assignment students will be given a series of small tasks to familiarize themselves with various omics data repositories, genome browsers, online bioinformatic tools, and basic data analysis. They will also be given a detailed instructions and tutorials which can serve as the basics for their future work. This activity can earn them 10% of their final points.

Transversal activity 3: Perception of P4 medicine among different EU stakeholders (weeks 1, 2 and final)

During this module, students will continue working on the transversal activity that connects all PROMISE modules and learning expeditions. Transversal activity aims to examine what different stakeholders currently know and think about P4 medicine. During this module, students will analyse initial survey responses in groups, then make final adjustments and disseminate it across Europe to different stakeholders they already identified as part of their assignment in Participatory medicine module. Finally, they will analyse the collected data and create infographics and communication material to report on the current state of P4 medicine in Europe. This activity can earn them 10% of their final points, and participation and completion of this activity is mandatory for those who want to compete for learning expeditions.

Group project: Propose a P4 medicine research project (form week 1 to final week)

In this module students are expected to collaborate with their peers in small groups (4 students) in creating a P4 medicine research project proposal. They will be given detailed instructions on the segments they are expected to cover. This activity can earn them 35% of final points.