



## Module about Precision Medicine

### Short Description

According to the Precision Medicine Initiative, Precision medicine (PM) is an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment and lifestyle for each person.

The present module gives an introduction into the subject, with a total of 1½ ECTS points for all non-bioinformatics students (14 lessons à 45/60 minutes) and 3 ECTS points for students in bioinformatics (28 lessons à 45/60 minutes). Subjects include the general concept and the scientific disciplines involved (data research, genomics and molecular medicine, ethics and data protection), but most lectures concentrate on translational aspects and the use of precision medicine for therapeutic purposes (targeting therapies with digital imaging, treatment of cancer, pharmacogenomics, gender medicine, cell therapy, and organoids).

### Organizational Details

Lectures will take place on Wednesdays from 15.15 to 17.00h during the spring semester (February to May), the KSL number is 473286. The course director is Prof. Dr. Carlo Largiadèr together with Dr. Rémy Bruggmann, and management issues are solved by Timo Staub ([timo.staub@bcpm.unibe.ch](mailto:timo.staub@bcpm.unibe.ch)), Claudia Requeta ([claudia.requeta@bcpm.unibe.ch](mailto:claudia.requeta@bcpm.unibe.ch)) and Jolanda Paganoni ([jolanda.paganoni@bioinformatics.unibe.ch](mailto:jolanda.paganoni@bioinformatics.unibe.ch)).

### Target Audience, Learning Goals

The module addresses Master students who have basic knowledge about medicine, biology and/or chemistry. After visiting the module, the students will:

- understand the general concept of precision medicine (and be able to discuss it).
- be able to name the most important PM methodologies, and understand their role in PM research and translational application.
- be able to name several examples of PM application in different medical fields, and understand how these examples profit from the PM methodologies mentioned above.

With introduction, methodologies, and clinical application lessons, the module gives an introduction into the richness of precision medicine, which is quite an interesting and heterogeneous topic.

## Lesson overview

<b>Precision Medicine Module FS 2024 (Wednesdays, 15:15 - 17:00h)</b>					
				<b>Lessons/Tracks</b>	
<b>Date</b>	<b>No.</b>	<b>Title</b>	<b>Hours</b>	<b>Bioinformatics Students</b>	<b>Pharma and (Bio-)Medical Students</b>
<b>21.02.</b>	<b>1</b>	Intro to Precision Medicine	2	2	2
<b>28.02.</b>	<b>2</b>	Ethics and data privacy – history and principles	1	1	1
		Legal and ethics - Application procedures	1	1	1
<b>06.03.</b>	<b>3</b>	Gender medicine	2	2	2
<b>13.03.</b>	<b>4</b>	Intro to molecular medicine	1	1	1
		Intro to molecular medicine	1	1	1
<b>20.03.</b>	<b>5</b>	Gene Therapy	2	2	2
<b>27.03.</b>	<b>6</b>	Organoids	2	2	2
<b>10.04.</b>	<b>7</b>	Use of PM in cancer research and treatment	2	2	2
<b>17.04.</b>	<b>7</b>	Legal and ethics - Intro and data protection	2	2	
<b>24.04.</b>	<b>8</b>	Pharmacogenomics - intro	2	2	
<b>01.05.</b>	<b>9</b>	Clinical Study Design - intro	2	2	
<b>08.05.</b>	<b>10</b>	Clinical Study Design - advanced	2	2	
<b>15.05.</b>	<b>12</b>	GWAS - intro	2	2	
<b>22.05.</b>	<b>13</b>	GWAS - advanced	2	2	
<b>29.05.</b>	<b>14</b>	Rare diseases	2	2	
<b>Sum of the lessons/tracks</b>				<b>28</b>	<b>14</b>
<b>05.06.</b>		Evaluation exam	2	2	2