

# PhD Program in Biomedical Engineering

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The PhD program in Biomedical Engineering aims to provide advanced educational tools in the field of Biomedical Engineering in order to complement the existing doctoral supervision offered by the Faculty of Medicine of the University of Basel.

## 1. Curriculum

The PhD program offers two types of educational activities:

- **Courses** that comprise lectures and seminar series and are organized in four modules as showed in section 5. The first basic module aims to provide the student the basic knowledge in biomedical engineering. The other three modules deeply introduce the participants in the field of Image-guided therapy, biomaterials and tissue engineering. Students can propose both topics and external experts to be invited for seminar series.
- **Summer and winter schools** (2 ECTS) are scheduled after the first year at yearly intervals. The topics comprehensive cover all modules and include, for example: materials meet medicine, advanced osteotomy, biomechanics, regenerative medicine, etc.

Moreover, the participants will benefit of the PhD training Platform of Health Sciences of the University of Basel (PPHS)<sup>1</sup>, which offer the possibility of integration among all doctoral students of the University of Basel in the field of Health Sciences.

Generally, lectures will be given in English.

## 2. Supported activities

The doctoral program supports the mobility of doctoral students and fund the participation to subject-specific courses and workshops at other Swiss universities and to summer/winter schools. Applications including costs below 500 CHF per applicant can be granted by the PhD coordinator, applications above that are reviewed by the PhD committee. It also sponsors the participation of highly qualified external experts to lecture in both the seminar

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<sup>1</sup> <https://pphs.unibas.ch>

series and summer/winter school. Members of PhD committees can be reimbursed for committee meeting provided that they give a public presentation.

### 3. Regulations

#### Admission requirements

Approved doctoral students of the Faculty of Medicine with a dissertation topic in a relevant field of biomedical engineering may enter this doctoral program. Applications should be submitted by the end of the first semester of PhD to the program coordinator (Dr. Gabriela Oser, <mailto:gabriela.oser@unibas.ch>)

PhD students not enrolled at the Faculty of Medicine can participate at the organized events and can also get the PhD program certificate.

#### Graduation

Each doctoral student is expected to achieve at least 18 ECTS within the program to gain the graduation certificate. Participation in the lecture series Module Basic and a visit to summer or winter school are mandatory. Multiple participation in the seminar series "Selected research topics in Biomedical Engineering" is desirable.

### 4. Organization

The **program management** is responsible for the curriculum and the activities of the program. It ensures the coordination and administration and comprises Dr. Simone Hieber, Prof. Dr. Bert Müller, Prof. Dr. Philippe Cattin, Prof. Dr. med. Hans-Florian Zeilhofer, a student representative and the **program coordinator** Dr. Gabriela Oser.

## 5. Courses and credit points

Modules	Courses	Type	Semester	Resp. Teacher	ECTS
Basic	Selected research topics in Biomedical Engineering	seminar	spring-autumn	B. Müller	2
Image-guided Therapy	Escape the Box – Computer Vision	seminar	spring-autumn	P. Cattin	1
	Introduction to Minimal Invasive Robot-Assisted Computer-guided Laser osteotomy and critical literature studies	seminar	spring-autumn	G. Rauter	1
Biomaterials					
Tissue Engineering, Surgery, Orthopedics and Biomechanics	Tissue Engineering	seminar	spring-autumn	I. Martin	3
	Regenerative Medicine	seminar	spring-autumn	I. Martin	3
	Biomechanics, Motion Analysis, Biocalorimetry and Clinical Research	seminar	spring-autumn	N. Friederich	1
Transferable skills					