

Biomaterials and smart devices

 **ECTS**
3 crédits

 **Composante**
UFR Chimie,
UFR des
Sciences
fondamentales
et biomédicales

 **Volume horaire**
20h

 **Période de
l'année**
Semestre 3

En bref

- **Langue(s) d'enseignement:** English
- **Forme d'enseignement :** Lecture and exercise
- **Ouvert aux étudiants en échange:** Non

Présentation

DESCRIPTION

This teaching unit will offer a comprehensive series of courses, seminars and tutored workshop focusing on various biomaterials and their integration in smart devices dedicated to medtech and biotech. The interdisciplinary nature of the teaching will combine elements of chemistry, engineering, mechanics, and biology. Fundamental concepts and practical applications, such as those in cardiovascular surgery, orthopedic systems, dental reconstruction and biosensing will be addressed concurrently.

Content:

- * **Biomaterial classifications** (Bioinert, Bioactive, Bioresorbable, Stimuli-responsive biomaterials)
- * **Biomaterials in biomedical engineering:** tissue engineering, immune engineering)

- * **Biomaterials in medical practice** (Orthopedics, Cardiovascular applications, Ophthalmics, Dental applications, Wound healing)
- * **Biomaterial as active components in diagnostics devices:** when biomaterials determine the overall analytical performance.
- * **Biomaterials in Bioelectronic Devices:** From biometric wearables devices to deep brain stimulation tools.
- * **Environmental considerations about biomaterials manufacturing and integration:** printing technologies, carbon footprint and recyclability of smart devices.
- * **Seminars** given by startupper, practitioners or researchers on the teaching unit topics.
- * **Tutored workshop** around the topics covered in the seminars.

HEURES D'ENSEIGNEMENT

Biomaterials and smart devices	Cours Magistral	16h
Biomaterials and smart devices		4h

PRÉ-REQUIS NÉCESSAIRES

Basics in (bio-)molecular and material chemistry

En bref

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CONTACTS

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