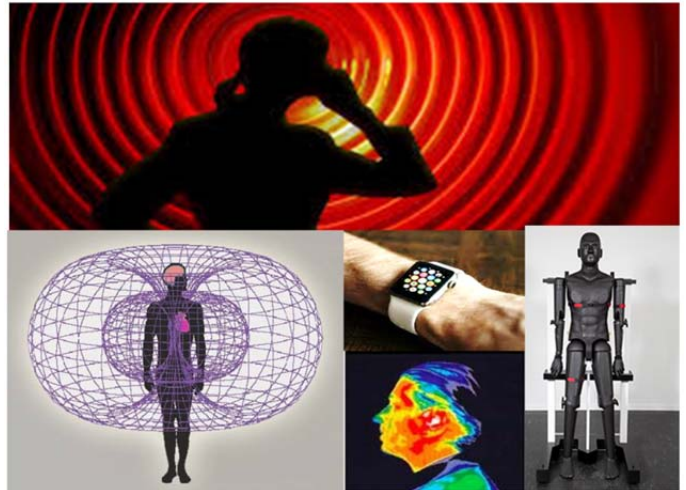


## NEW COURSE | Fall 2019

### ECE 6011: Bioelectromagnetics

Instructor: Prof. Asimina Kiourti ([kiourti.1@osu.edu](mailto:kiourti.1@osu.edu))

This course provides an introduction to the inter-disciplinary field of BioEM for graduate students. Lectures cover the interaction of electromagnetic fields with biological tissues across the frequency spectrum; dosimetry; and various applications of BioEM (medical, consumer, and more).



#### Requirements

Graduate standing in Engineering, Biological Sciences, Mathematical and Physical Sciences; or permission of instructor.

#### Topics

- Basic Concepts: history, electromagnetic fields, properties of biological tissues, examples, definitions
- Bioelectromagnetics at DC and extremely low frequencies
- Bioelectromagnetics at Radio-Frequencies
- Bioelectromagnetics at THz and beyond
- Bioelectromagnetic dosimetry
- Applications: communications, sensing, stimulation, powering, hyperthermia, imaging, wearables, implants

#### Grading

Homework assignments and presentations in class	40%
Quizzes (in class)	20%
Final project	40%

#### Textbook and Other Course Materials

- C. Furse, D.A. Christensen, C.H. Durney, and J. Nagel, “Basic Introduction to Bioelectromagnetics,” CRC Press, 3<sup>rd</sup> Ed.
- Lecture Notes