

Introduction to Tissue Engineering and Regenerative Dentistry (Online Course)

Curso em língua inglesa ofertado pelo Programa de Pós-graduação em Odontologia (PPGO/UFC) em parceria com a Oregon Health & Science University (OHSU), ministrado pelo Prof. Dr. Luiz E. Bertassoni e equipe, em regime EAD, com videoaulas e seminários sobre os princípios de Engenharia Tecidual e os métodos relacionados à Odontologia Regenerativa

Período do curso: 01/06/2020 a 31/07/2020

Público Alvo: Professores, pesquisadores e alunos de graduação e pós-graduação da UFC

Carga horária: 40h

Inscrições limitadas de 26 a 29 de maio pelo *link*:

<https://forms.gle/9mrHFPWA6k8lqHhcA>

Luiz E. Bertassoni, DDS PhD

- PhD em Biomateriais e Bioengenharia (University of Sidney)
- Pós-doutor em Tecnologias da Saúde (Harvard-MIT Division of Health Sciences and Technology)
- Professor da Oregon Health & Science University

Course Directors: Luiz Bertassoni, DDS, PhD;
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Oregon
Health &
Science
University



Programa de Pós-
graduação em
Odontologia –
PPGO/UFC



COURSE LECTURES:

1. Introduction to tissue engineering regenerative dentistry –
Luiz Bertassoni, DDS, PhD
2. Growth factors and biomaterials – Ramesh Subbiah, PhD
3. Applied regenerative dentistry, Dentin-Pulp complex –
Cristiane França, DDS, PhD
4. Introduction to 3D Bioprinting – Luiz Bertassoni, DDS,
PhD
5. Introduction to microfluidics and organs-on-a-chip – Amin
Mansoorifar, PhD
6. Applied regenerative dentistry, Bone regeneration –
Cristiane Franca, DDS, PhD

LEARNING OBJECTIVES:

JUNE 1ST - INTRODUCTION TO TISSUE ENGINEERING AND REGENERATIVE DENTISTRY – DR. BERTASSONI

- Describe the core principles and components tissue engineering
 - List examples of applied strategies of tissue fabrication
 - Provide examples of applied regeneration strategies

JUNE 8 - GROWTH FACTORS AND BIOMATERIALS – DR. SUBBIAH

- Understand the role of growth factors, biomaterials and delivery system in tissue regeneration
- Design and chose the ideal biomaterial and delivery system
- Understand the difference of natural and synthetic biomaterials
 - Plan for the fabrication of advanced delivery systems

JUNE 15 - APPLIED REGENERATIVE DENTISTRY, DENTIN-PULP COMPLEX – DR. FRANÇA

- Explain the sources of stem cells for regenerative dentistry
- List the strategies to regenerate the dental pulp from immature teeth
- Describe potential strategies to regenerate dental pulp from adult teeth

JUNE 22 - INTRODUCTION TO 3D BIOPRINTING – DR. BERTASSONI

- Describe the difference between 3D printing and 3D Bioprinting
 - Explain the different methods of bioprinting
- List different examples of bioprinting that are applicable to dentistry

JUNE 29 - INTRODUCTION TO MICROFLUIDICS AND ORGANS-ON-A-CHIP – DR. MANSOORIFAR

- Describe microfluidic technology and its advantages over conventional biology approaches
 - Explain the physics happening at microscale
 - Describe microfluidic applications
- Understand the concept of organ-on-a-chip and its application in biological studies

JULY 6 - APPLIED REGENERATIVE DENTISTRY, BONE REGENERATION – DR. FRANÇA

- Explain the strategies to regenerate the periodontal ligament
 - List the strategies to regenerate bone
- Describe the advantages of pre-vascularized scaffolds for bone regeneration

JULY 13 – APPLIED TISSUE ENGINEERING SEMINAR I – DR. SUBBIAH AND DR. FRANÇA

JULY 20 – APPLIED TISSUE ENGINEERING SEMINAR II – MS. ATHIRASALA AND DR. PARTHIBAN

JULY 27 – LIVE CHAT - DISCUSSION WITH DR. BERTASSONI AND ALL INSTRUCTORS AT

JULY 28 – FINAL EXAM