

# ORAL BIOLOGY

## MULTI FACULTY

**PRE-REQUISITES :** Undergraduation

**INTENDED AUDIENCE :** Undergraduate students who will want to know more about a specific area of biology which blends into many fundamental scientific domains.

**INDUSTRIES APPLICABLE TO :** Oral healthcare companies ( Colgate, Pepsodent, Himalaya, Dr.Reddy's Laboratories)

**COURSE OUTLINE :**

Oral Biology involves studying about a unique combination of tissues and functions of the mouth and craniofacial complex.

Subject blends fundamental scientific disciplines in unique and fascinating ways to meet the challenges of developing new and highly effective ways to manage, cure or prevent diseases and developmental defects.

**ABOUT INSTRUCTOR :**

Prof. R.Ramya is Professor and head of the department of Oral Biology. She has a postgraduate degree in Oral Pathology with a teaching Experience of 14 years. Her research interests include Oral cancer, Bio anotechnology, Oral Biology and Salivary Diagnostics. She has 5 patent, 65publications, 3 textbooks, 3 sponsored research to her credit.

Prof. T.A.Lakshmi, is an Assistant Professor in the department of Oral Biology. She has a postgraduate degree in Oral Pathology. Her research interests include Oral cancer, Oral potentially malignant disorders and Educational innovation.

Prof. Sandhya Sundar, is an Assistant Professor in the department of Oral Biology. She has a postgraduate degree in Oral Pathology. Her research interests odontogenic cysts and tumors

Prof. Suganya Panneer Selvam, is an Assistant Professor in the department of Oral Biology. She has a postgraduate degree in Oral Pathology. Her research interests Oral potentially malignant disorders, odontogenic cysts and tumors

Prof. Sivaprakash Rajasekharan BDS, MSc Paediatric Dentistry is currently working at the Department of Paediatric Dentistry and Special Care, Ghent University, Belgium. His research interests include tricalcium silicates, bioactive materials, paediatric endodontics and regenerative therapy.

Prof. P. Rajashree, is an Assistant Professor at the Centre of Advanced Studies in Crystallography & Biophysics, University of Madras, Chennai. Her research interests include Immune mechanisms in infection and cancer, Nanoparticles for sensing and immunotherapeutic application, Nanoceramics & mesoporous materials for biomedical application.

Prof. Yasusei Kudo is Professor & Head of Department of Oral biosciences, Tokushima University, Japan. His research interest includes Oral cancer, Biomarkers.

Prof. Rajeshkumar is an associate Professor at department of Pharmacology . He has a doctoral degree in the field of Nanobiomedicine and post graduate in biotechnology

Prof. Chitra is an assistant Professor at department of Material science. She holds a doctoral degree in the field of Nanotechnology

Prof. Rengalakshmi is an orthodontist with research interest in implant assisted orthodontics and 3-D Bioprinting

**COURSE PLAN :**

**Week 1:** Craniofacial anatomy, Oral microbiome, Basics of Biomaterial Science and Engineering

**Week 2:** Specialized mucosa, Evaluation of Oral microbiome, Protein mediated biomaterials

**Week 3:** Hard tissues of the oral cavity, Dysbiosis, Polymers, Surfaces, Colloid Science.

**Week 4:** Periodontium, Mucosal and regional immunology, Bioinspired materials Bioengineered tissue models

**Week 5:** Mineralization dynamics, Oral defence mechanisms, Immune response to biomaterials

**Week 6:** Saliva – Composition and functions, Oral immune dysfunction, Applications in Cancer diagnosis and therapy, implantable devices, drug delivery systems, gene vectors, bionanotechnology and tissue engineering.

**Week 7:** Stem cells in the oro -dental region, Immunology in Oral cancer, Biocompatibility assays

**Week 8:** Stem cell isolation, Immunoassay, 3-D Bioprinting