Saveetha Dental College & Hospitals
162, Poonamallee High Road,
Velappanchavadi,
Chennai-77

MS Program

Outcomes:

1. Demonstrate competence and proficiency in Oral Biology.
2. Demonstrate critical thinking, research and problem solving in Oral Biology.

Duration of the course:

Three years (12 Quarters)

Method Of Training:

Training will include involvement in theory, laboratory & Thesis work

Scheme & Schedule Of Final Examination

Quarter	Units (Theory & Practical)	Assessment
Q1	a) Anthropological Perspectives on Global Health: Implications for Oral Biology and Medicine **b)** Biology of Oral tissues	Module closure examination. (OSPE)
Q2	a) Oral Microbiome	Module closure examination(OSPE)
Q3	a) Immunology & Lymphology b) Developmental Neuroendocrineimmunology **c)** Clinical Immunology and Lymphology	Module closure examination(OSPE)
Q4	a) Craniofacial Development & Ontogenesis	**I YEAR ANNUAL EXAM**(Theory & OSPE)
Q5	a) Integrative biology and Biomaterial	Module closure

	science b) Basics Of Minimally Invasive Dentistry	examination(OSPE)
Q6	a) Sensory Neuroscience & Pain mechanisms, Biomechanics	Module closure examination(OSPE)
Q7	a) Mineralization Dynamics	Module closure examination(OSPE)
Q8	a) Salivary exosomes	**II YEAR ANNUAL EXAM**(Theory & OSPE)
Q9	a) Tissue Engineering	Module closure examination(OSPE)
Q10	Semester Abroad	
Q11		
Q12	CAT & Thesis consolidation	**Final examination**(Theory, OSPE, VivaVoce)

Curriculum

Advanced Oral Biology:

1.Ontogenesis

Evolutionary perspective of cellular development from simple molecules that were formed during first billion years of Earth to development of cells, tissues, and organs of invertebrates and vertebrates. Development of vertebrate feeding apparatus from comparative anatomical and physiological point of view, followed by embryogenesis of orofacial and dental structures of humans.

2.Pathobiology

Molecular basis for pathogenic processes in tissues of oral cavity. Topics include microbially mediated demineralization of hard tissues, soft tissue infections, carcinogenesis, colonization of mucosal substrates by opportunists, etc. S/U or letter grading.

3.Salivary Diagnostics: Salivaomics, Saliva-Exosomics, Saliva Liquid Biopsy

Focus on basic, translational, and clinical advancements of saliva and its -omics constituents in oral and systemic health, precision, and personalized medicine.

4.Oral Embryology and Histology

Development and histological structure of facial region and oral and peri-oral organs and tissues.

5.Mechanisms and Relief of Pain

Neuroanatomical, neurophysiological, and biochemical bases of pain perception. Classical pain theories, pain receptors and pathways, endogenous mechanisms of pain modulation, and pharmacological basis for treatment of pain disorders.

6.Current Topics in Oral Immunology

basic immunology. Immunological issues related to oral health, including HIV, opportunistic oral infections, periodontal pathology, oral immunopathology, caries immunology, endodontic immunology. Basic cellular and molecular mechanisms involved in responses mediated by immune effectors, with emphasis on immunopathology involved in autoimmunity, cancer, and immunodeficiency syndromes. Letter grading.

7.Genomics and Proteomics in Oral Biology Research

Fundamentals and technical aspects of genomics and proteomics and analysis of data derived therefrom. Implications and applications of genomics and proteomics in diagnostic protocols such as salivary diagnostics.

8.Biology of Temporomandibular Joint

Anatomy, histology, physiology, and biomechanics of temporomandibular joint (TMJ) and related musculature. Pain mechanisms, sensorimotor integration, and motor mechanisms in TMJ function, and current methods of TMJ imaging.

9.Osteoimmunology

Oral bone biology and immunology and how both systems talk to each other. Topics include immune modulation of bone metabolism, osteoblastic niche for hematopoietic progenitors, adult bone marrow stem cell changes, and osteoimmunology in at-risk populations. Letter grading.

10.Integrative Biology and Biomaterials Science in Relation to Dentistry

Introduction to integrative biology and biomaterials science by bringing together diversity of disciplines that complement one another to unravel complexity of biology in biomaterials in relation to dentistry. Integration of bioengineering, materials sciences, cell biology, and dentistry. Fundamentals of materials science in relation to dentistry, stem cell biology, and knowledge necessary to participate in dental and biomedical research, innovation, and product development.

.

11.Craniofacial Growth and Development

principles governing growth and development of craniofacial region.

11.Dental Embryology and Histology

development of orofacial apparatus and histological features of its component tissues.

12.Dental Pharmacology and Therapeutics

Pharmacology, with particular emphasis on how drugs interact with dentistry. General principles of drug action and drug effects on autonomic and central nervous systems.

13.Culture, Ethnicity, and Health: Implications for Oral Biology and Medicine

Sociocultural, biological, and linguistic anthropology to understand factors that influence health and well-being, experience and distribution of illness, prevention and treatment of sickness, healing processes, social relations of therapy management, and cultural importance and utilization of pluralistic medical systems.

Theory, perspectives, and methods from clinical medicine, public health, epidemiology, demography, and social sciences.

14.Anthropological Perspectives on Global Health: Implications for Oral Biology and Medicine

Political ecology of infectious diseases, child health issues, women's health and reproductive health, global trade in legal and illegal drugs, demography and health transition, structural adjustment, problems associated with globalization of pharmaceutical industry; antibiotic resistance, and globalization and health equity.

15.Developmental Neuroendocrineimmunology

Psychological and physiological processes intertwine, and one important aspect of psychoneuroimmunological research is characterization of mechanisms that underlie these interactions. Examination of current literature on neuroimmune interaction from developmental perspective.

16. Clinical Immunology and Lymphology

Immunology and lymphology from clinical perspective. Emphasis on immune surveillance and lymphatic drainage of oral pathologies associated with AIDS and other diseases.

17.Molecular and Cell Biology for Oral Biology Graduate Students

Lecture, two hours; literature review, one hour. Advanced course on prokaryotic and eukaryotic molecular and cell biology, with emphasis on applications in dental research.