COURSE OF STUDIES

for

Master of Philosophy

in

Oral Pathology

UNIVERSITY OF HEALTH SCIENCES, LAHORE PAKISTAN

Program Rationale: The programme of M. Phil Oral Pathology aspires to produce oral pathologists of international standard who will be able to provide state of the art research and diagnostic services in Oral pathology to support patient care and improve the quality of life of the masses.

Mission Statement:

To be the national center for research & diagnostics in the field of oral & maxillofacial pathology

To explore the cellular and molecular basis of diseases to guide diagnosis and treatment by conducting Basic, Applied & Translational research in the field of Oral Histopathology, Oral Microbiology, Virology & immunology, and Oral Medicine.

Program Educational Objectives:

Upon successful completion of M. Phil in Oral Pathology which includes a research project and the defense of a thesis, participants will demonstrate:

- The skills and knowledge for a productive, competent, and compassionate practice of oral pathology.
- An understanding of the scientific method and the technological advances relevant for science.
- Ability to communicate the knowledge acquired to the community both professional and general.
- Confidence, independence, and motivation for life-long learning.
- Critical understanding of oral pathological conditions that require histopathological diagnosis.
- Competency in the microscopical diagnosis of common and significant oral pathological lesions with advance procedures

Program Learning Outcomes:

At the completion of the program the students should be able to

- Examine and interpret gross tissue specimens of oral region and prepare instructions for tissue embedding and processing
- Interpret pathologic cellular change in oral tissues microscopically; group diseases of similar histological patterns to arrive at a differential diagnosis and ultimately a final diagnosis.
- Recognize the limitations of routine light microscopy and recognize the indications foradditional studies, such as special stains, ultra-structural studies, Immunohistochemical studies, DNA or RNA hybridization studies, etc.
- Write a final pathology report with final diagnosis and appropriate comments and be able to communicate effectively with the contributing clinician.
- Interpret pathologic changes of oral region clinically and radiographically, group diseases of similar clinical/radiographic pattern to arrive at a differential diagnosis and ultimately a final diagnosis.
- Discuss the effects of systemic diseases on the oral tissues
- Teach oral pathology to undergraduate medical & dental and postgraduate dental students
- Present routine and unusual case reports at conferences, seminars, and tumor boards
- Perform clinicopathologic research.
- Prepare manuscripts for publication on clinicopathologic research.
- Demonstrate good working relationships with colleagues and appropriate communication skills with patients and families.
- Keep knowledge and skills and appropriate attitudes up to date.

SCHEME OF STUDIES (2-Year)

MS/MPhil. Oral Pathology

Semester #	Course code	Course title	Credit hours		
			Theory	Practical	Total
1	RM701	Biostatistics and Research Methodology	2	0	2
	OP701	Diagnostic Oral Pathology(I)	2	1	8
	OP702	Diagnostic Oral Pathology (II)	2	1	
	OP703	Oral Microbiology & Immunology	0.5	0.5	
	OP704	Experimental Oral Pathology	0.5	0.5	
	GP104	Elective Course (General Pathology)	2	0	2
2	OP705	Diagnostic Oral Pathology (III)	2	1	8
	OP706	Diagnostic Oral Pathology (IV)	2	1	
	OP707	Oral Cytology	0.5	0.5	
	OP708	Oral Radiology	0.5	0.5	
	OH104	Elective Course (Oral Histology)	2	0	2
3	Research (thesis)		6		6
4	Professional & Teaching Skills Apprenticeship (PTSA)		0		2
			(Total: 30)		

Course Title: Oral Pathology

Course Objective:

To produce the graduates with teaching, diagnostic skills and experts on Oral Pathology

Learning Outcome: The learning outcomes of an oral pathology course typically include a comprehensive understanding of the pathogenesis, clinical features, radiographic appearances, and histopathology of oral diseases. Students are expected to acquire skills in diagnosing oral pathological conditions through various methods such as clinical examination, radiographic analysis, and microscopic evaluation.

Here are some key learning outcomes you might expect from an oral pathology course:

1. Understand the fundamental concepts of oral diseases, including their etiology and pathogenesis.
2. Identify clinical features of common and less common oral diseases.
3. Interpret radiographic findings to aid in the diagnosis of oral conditions.
4. Analyze histopathological evidence to confirm diagnoses.
5. Develop differential diagnoses for oral lesions and conditions.
6. Recognize the role of oral pathologists in the diagnosis and treatment of oral cancer.
7. Apply knowledge to real-world scenarios, improving diagnostic and treatment planning skills.
8. Conduct research and critically evaluate literature in the field of oral pathology

Course Outline:

Course Code: OP701

Course Title: Diagnostic Oral Pathology(I)

- **Abnormalities of the teeth**
- Environmental alterations of teeth
- Environmental Effects on Tooth Structure

- Development, Post developmental Loss of
- Tooth Structure, Environmental
- Discoloration of Teeth, Localized
- Disturbances in Eruption.

- **Developmental alterations of teeth**

  Developmental Alterations in the Number of Teeth
  Developmental Alterations in the Size of Teeth
  Developmental Alterations in the Shape of Teeth
  Developmental Alterations in the Structure of Teeth.

- **Odontogenic cysts and Tumours**
  Dentigerous Cyst, Eruption Cyst,
  Primordial Cyst, Odontogenic Keratocyst,
  Orthokeratinized Odontogenic Cyst,
  Nevoid Basal Cell Carcinoma Syndrome,
  Gingival Cyst of the Newborn, Gingival
  Cyst of the Adult, Lateral Periodontal Cyst.
  Calcifying Odontogenic Cyst, Glandular
  Odontogenic Cyst, Buccal Bifurcation
  Cyst, Carcinoma in Odontogenic Cysts.
  ODONTOGENIC TUMORS
  Tumors of odontogenic epithelium,
  Ameloblastoma, Malignant Ameloblastoma
  and Ameloblastic Carcinoma, Clear Cell
  Odontogenic Carcinoma, Adenomatoid
  Odontogenic Tumor, Calcifying Epithelial
  Odontogenic Tumor, Squamous
  Odontogenic Tumor.
  Tumors of odontogenic ectomesenchyme

Central Odontogenic Fibroma, Peripheral
Odontogenic Fibroma, Granular Cell
Odontogenic Tumor, Odontogenic
Myxoma, Cementoblastoma.
Mixed odontogenic tumors
Ameloblastic Fibroma, Ameloblastic Fibro-
Odontoma, Ameloblastic Fibrosarcoma,

- **Bone pathology**

  Osteogenesis lmperfecta, Osteopetrosis, Cleidocranial Dysplasia, Focal
  Osteoporotic Marrow Defect, Idiopathic
  Osteosclerosis, Massive osteolysis, Paget Disease of Bone, Central Giant Cell
  Granuloma, Cherubism, Simple Bone Cyst,
  Aneurysmal Bone Cyst.
  Fibro-osseous lesions of the jaws
  Fibrous Dysplasia, Cernento-Osseous
  Dysplasia, Familial Gigantiform
  Cementoma, Ossifying Fibroma, Juvenile
  Ossifying Fibroma.
  Bone tumors
  Osteoma, Gardner Syndrome,
  Osteoblastoma and Osteoid Osteoma,
  Cementoblastoma, Chondroma,
  Chondromyxoid Fibroma, Synovial
  Chondrornatosls, Desmoplastic Fibroma,
  Osteosarcoma, Chondrosarcoma Ewing
  Sarcoma, Metastatic Tumors to the Jaws.

Contact Hours:	**Credit Hours:**
Theory (Face to face teaching) = 32	Theory = 2
Practical (Grossing &Microscopy) =48	Practical = 1

Total = 80 Total = 3

Course Code OP 702

Course Title: Diagnostic Oral Pathology(II)

PULPAL PATHOLOGY

Pulpitis, Secondary Dentin, Pulpal Calcifications, Periapical Granuloma, Periapical Cyst. Periapical Abscess, Cellulitis, Osteomyelitis, Diffuse Sclerosing Osteomyelitis, Condensing Osteitis, Osteomyelitis with Proliferative Periostitis, Alveolar Osteitis.

PERIODONTAL DISEASES

Gingivitis, Necrotizing Ulcerative Gingivitis, Plasma Cell Gingivitis, Granulomatous Gingivitis, Desquamative Gingivitis, Drug-Related Gingival Hyperplasia, Gingival Fibromatosis, Periodontitis. Aggressive Periodontitis, Papillon-Lefevre Syndrome.

HAEMATOLOGICAL DISORDERS

Lymphoid Hyperplasia, Hemophilia, Anemia, Sickle Cell Anemia, Thalassemia, Aplastic Anemia, Neutropenia, Cyclic Neutropenia, agranulocytosis, Thrombocytopenia, Polycythemia Vera, Leukemia, Langerhans Cell Histiocytosis, Hodgkin Lymphoma, Non-Hodgkin& Lymphoma. Mycosis Fungoidcs, Burkitt Lymphoma. Angiocentric T-Cell Lymphoma. Multiple Myeloma, Plasmacytoma.

SOFT TISSUE TUMOURS

Fibroma, Giant Cell Fibroma, Epulis Flssuratum, Inflammatory Papillary Hyperplasia, Fibrous Histiocytoma, Fibromatosis, Myofibroma, Oral Focal Mucinosis. Pyogenic Granuloma. Peripheral Giant Cell Granuloma, Peripheral Ossifying Fibroma, Lipoma, Traumatic Neuroma, Palisaded Encapsulated Neuroma, Neurilemoma, Neurofibroma, Neurofibromatosis, Multiple Endocrine Neoplasia Type 2B, Melanotic Neuroectodermal Tumor of Infancy, Paraganglioma. Granular Cell Tumor. Congenital Epulis. Hemangioma and Vascular Malformations. Sturge-Weber Angiomatosis, Nasopharyngeal Angiofibroma, Hemangiopericytoma, Lymphangioma, Leiomyoma, Rhabdomyoma, Osseous and Cartilaginous Choristomas.

Soft tissue sarcomas

Fibrosarcoma, Malignant Fibrous Histiocytoma, Liposarcoma, Malignant Peripheral Nerve Sheath Tumor, Olfactory Neuroblastoma, Angiosarcoma, Kaposi Sarcoma, Leiomyosarcoma, Rhabdomyosarcoma, Synovial Sarcoma, Alveolar Soft-Part Sarcoma, Metastases to the Oral Soft Tissues.

Contact Hours: **Credit Hours:**

Theory (Face to face teaching) = 32 Theory = 2

Practical (Grossing &Microscopy) =48 Practical =1

Total = 80 Total = 3

Course Code: OP703

Course title: Oral Microbiology and Immunology:

Understanding the unique ecological conditions of the oral cavity and how they influence microbial life.

Oral Microbiome: Studying the diversity and complex interactions within the oral microbial community.

Oral Microbial Ecology and Physiology: Exploring the behavior and characteristics of oral microbes.

Innate and Adaptive Immune Responses: Learning about the body's defense mechanisms against oral pathogens.

Mechanisms of Colonization: Examining how bacteria colonize and establish themselves in the oral cavity.

Pathogens and Oral Diseases: Identifying bacterial, fungal, and viral pathogens associated with oral diseases.

Oral Health and Systemic Diseases: Investigating the connections between oral bacteria and systemic health issues.

Contact Hours: **Credit Hours:**

Theory (Face to face teaching) = 08 Theory = 0.5

Practical = 24 Practical = 0.5

Total = 32 Total = 1

Course Code: OP 704

Course Title: Experimental Oral Pathology

Experimental Oral Pathology

Introduction to Experimental Oral Pathology: Fundamental concepts of cell biology and their application to oral and dental disease.

Laboratory Research Methods: Training in a range of techniques used to study the behavior of oral tissues in health and disease.

Cell and Tissue Structure and Behavior: Seminars and practical work dealing with cells and tissues in health and disease.

Research Project: A laboratory-based research project exploring any aspect of oral disease.

Experimental Design and Research: Introduction to experimental design and research methodologies at the forefront of innovations in the field.

Transferable Laboratory Skills: Gaining skills that are applicable across various research settings.

Academic Development: Learning how to write papers and present findings, potentially for publication.

Contact Hours:	**Credit Hours:**
Theory (Face to face teaching) = 08	Theory = 0.5
Practical = 24	Practical = 0.5
Total = 32	Total = 1

Course Code OP 705:

Course Title: Diagnostic Oral Pathology III

EPITHELIAL PATHOLOGY

Squamous Papilloma, Verruca Vulgaris,
Condyloma Acuminatum, Focal Epithelial
Hyperplasia, Sinonasal Papilloma,
Molluscum Contagiosum, Verruciform
Xanthoma, Seborrheic Keratosis,
Sebaceous Hyperplasia, Ephelis. Actinic

Lentigo, Lentigo Simplex, Melasma, Oral Melanotic Macule, Oral Melanoacanthoma, Acquired Melanocytic Nevus, Variants of Melanocytic Nevus, Leukoplakia, Erythroplakia, Smokeless Tobacco Use and Smokeless Tobacco, Keratosis, Oral Submucous Fibrosis, Nicotine Stomatitis, Actinic Keratosis, Actinic Cheilosis, Keratoacanthoma, Squamous Cell Carcinoma, Verrucous Carcinoma, Spindle Celt Carcinoma, Adenosquamous Carcinoma. Basaloid Squamous Carcinoma, Carcinoma of the Maxillary Sinus, Nasopharyngeal Carcinoma, Basal Cell Carcinoma, Merkel Cell Carcinoma.

DERMATOLOGIC DISEASES

Ectodermal Dysplasia, White Sponge Nevus, Hereditary Benign Intraepithelial Dyskeratosis, Pachyonychia Congenita, Dyskeratosis Congenita, Xeroderma Pigmentosum, Incontinentia Pigmenti, Darter's Disease, Warty Dyskeratoma, Pcutz-Jeghers Syndrome, Hereditary Hemorrhagic Telangiectasia, Ehlers-Danlos Syndromes. Tuberous Sclerosis, Multiple Hamartoma Syndrome.

Immune-mediated diseases

Pemphigus, Paraneoplastic Pemphigus, Cicatricial Pemphigoid, Bullous Pemphigoid, Erythema Multiforme,

Erythema Migrans, Reiter's Syndrome, Lichen Planus, Graft-Versus-Host Disease, Psoriasis, Lupus Erythematosus, Systemic Sclerosis, Epidermolysis Bullosa.

PHYSICAL / CHEMICAL INJURIES

Linea Alba, Morsicatio Buccarum, Traumatic Ulcerations, Electrical and Thermal Burns, Chemical Injuries of the Oral Mucosa. Noninfectious Oral Complications of Antineoplastic Therapy, Anesthetic Necrosis, Exfoliative Cheilitis, Submucosal Hemorrhage, Oral Trauma from Sexual Practices. Amalgam Tattoo and Other Localized Exogenous Pigmentations, Systemic Metallic Intoxication, Smoker's Melanosis, Drug-Related Discolorations of the Ora l Mucosa, Reactive Osseous and Chondromatous Metaplasia, Spontaneous Sequestration, Antral Pseudo cysts. Cervicofacial Emphysema, myospherulosis.

FORENSIC DENTISTRY

Record Management, Identification, Bite Pattern Evidence, Human Abuse, The Dentist as an Expert Witness.

Contact Hours:	**Credit Hours:**
Theory (Face to face teaching) = 32	Theory = 2
Practical (Grossing &Microscopy) = 48	Practical=1
Total = 80	Total = 3

Course Code OP 706

Course Title: Diagnostic Oral Pathology IV

SALIVARY GLAND PATHOLOGY

Mucocele, Ranula, Salivary Duct Cyst, Sialolithiasis, Sialadenitis, Cheilitis Glandularis, Sialorrhea, Xerostomia. Benign Lymphoepithelial Lesion, Sjogren Syndrome.

Sialadenosis, Adenomatoid Hyperplasia of the Minor Salivary Glands, Necrotizing Sialometaplasla.

Salivary gland tumors: Pleomorphic Adenoma, Oncocytoma, oncocytosis, Warthin Tumor, Monomorphic Adenoma, Canalicular Adenoma, Basal Celt Adenoma, Ductal Papilloma.

Mucoepidermoid Carcinoma, Acinic Cell Carcinoma, Adenocarcinoma, Malignant Mixed Tumors, Adenoid Cystic Carcinoma, polymorphous Low-Grade adenocarcinoma, Salivary Adenocarcinoma Not Otherwise Specified.

ORAL MANIFESTATIONS OF SYSTEMIC DISEASES

Mucopolysaccharidosis, lipid Reticuloendothelioses, lipoid proteinosis, Jaundice, Amyloidosis, Vitamin Deficiency, Iron-Deficiency Anemia, Plummer-Vinson Syndrome, Pernicious Anemia, Pituitary Dwarfism, Gigantism, Acromegaly. Hypothyroidism, Hyperthyroidism, Hypoparathyroidism, Pseudo-hypoparathyroidism,

Hyperparathyroidism, Hypercortisolism, Addison Disease, Diabetes Mellitus, Hypophosphatasia, Vitamin D-Resistant Rickets, Crohn's Disease, Pyostomatitis Vegetans.

IMMUNOLOGICAL DISORDERS

Recurrent Aphthous Stomatitis, Behcet's Syndrome, Sarcoidosis, Orofacial Granulomatosis, Wegener Granulomatosis. Allergic Mucosal Reactions to Systemic Drug Administration, Allergic Contact Stomatitis, Perioral Dermatitis, Flavoring, Chronic Oral Mucosal Contact Reactions to Dental Amalgam, Angioedema.

Infectious diseases (bacterial, viral, fungal, protozoal)

Herpes Simplex Virus. Varicella, Herpes Zoster. Infectious Mononucleosis, Cytomegalovirus. Enteroviruses, Rubeola, Rubella, Mumps, Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome. Impetigo, Erysipelas, Sinusitis, Actinomycosis, Candida Albicans, Cryptococcosis, Coccidioidomycosis, Aspergillosis

Contact Hours:	**Credit Hours:**
Theory (Face to face teaching) = 32	Theory = 2
Practical (Grossing &Microscopy) = 48	Practical = 1

Total = 80 Total = 3

Course Code OP 707:

Course Title: Oral Cytology

Basic concepts, history, and significance of cytology in oral diagnosis.

Cell Biology: Understanding cell structure, function, and the cell cycle.

Sample Collection Techniques: Methods for collecting exfoliative cytology samples from the oral cavity.

Sample Preparation: Staining techniques and slide preparation for microscopic examination.

Microscopic Analysis: Identifying normal and abnormal cellular structures and patterns.

Diagnostic Cytology: Differentiating between benign, dysplastic, and malignant cells.

Molecular Cytology: The role of molecular techniques in enhancing cytological diagnoses.

Clinical Correlation: Relating cytological findings to clinical presentations and patient management.

Contact Hours:	**Credit Hours:**
Theory (Face to face teaching) = 08	Theory = 0.5
Practical = 24	Practical = 0.5
Total = 32	Total = 1

Course Code: OP 708

Course Title Oral Radiology:

Radiation Physics: Understanding the principles of radiation generation and detection.

Radiation Biology: Studying the biological effects of radiation on tissues and cells.

Radiation Protection: Learning about safety measures and regulations to protect patients and staff.

Imaging Technology: Familiarization with various imaging modalities used in oral radiology.

Conventional Radiography: Techniques and interpretation of intraoral and extraoral films.

Digital Imaging: Advancements in digital radiography and its applications in dental practice **Exploration of CT, MRI,** and other imaging techniques relevant to oral health.

Diagnostic Interpretation: Developing skills to interpret radiographic findings and correlate them with clinical conditions.

Quality Assurance and Infection Control: Ensuring the quality of radiographic practice and maintaining infection control standard.

Contact Hours:	**Credit Hours:**
Theory (Face to face teaching) = 08	Theory = 0.5
Practical = 24	Practical = 0.5
Total = 32	Total = 1

Recommended Books:

Updated Editions of following books:

- Oral and maxillofacial pathology first South Asia edition 4th ed
- Oral pathology clinical pathologic correlations 7th ed
- Cawson essentials of oral pathology and oral medicine 9th ed.
- Rosai and Ackerman's Surgical Pathology
- Diagnostic principles and clinical correlates
- Mills and **Sternberg's** Diagnostic Surgical **Pathology**

Practicals :

Microscopy Basic Histological and staining techniques

- Slide preparation
- Use and handling of light microscope / Dissecting microscope
- Preparation of blood and oral smears
- Preparation of Frozen section

Course Title: Professional & Teaching Skills Apprenticeship (PTSA)

Credit Hours:02

Professional Skills Apprenticeship credit hours: 01

Teaching Skills Apprenticeship credit hours (CMT): 01

Professional Skills Apprenticeship:

- Students must be Competent in the microscopical diagnosis of common and significant oral pathological lesions with advance procedures.
- Students must be able to apply knowledge to real-world scenarios, improving diagnostic and treatment planning skills.
- Students must be able to demonstrate the application of special techniques.
- Students must be able to demonstrate histological features of histochemical and immunohisto- chemical stains in normal and diseased tissues.
- Demonstrate understanding of the origins of and justifications of molecular tests.
- Students must be Able to assess the need and value of molecular tests and how to request and interpret the significance of results.

Teaching Skills Apprenticeship

All students of M Phil programme will get registered for the CMT Certification in the final semester. Completing the course work and successfully getting certified for CMT, which is a patent of UHS, will be a compulsory integral component of PTSA (Professional and Teaching Skills Apprenticeship) for the 4th semester of all M Phil programs at UHS.