



Hesperides University

Research Office

Research Priorities

2nd Ed.

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Part One:

Research Priorities of the Faculty of Medical and Health Sciences

Axis 1: Cancer Research

1.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of breast cancer in Libya.
2.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of colorectal cancer in Libya.
3.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of lung cancer in Libya.
4.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of liver cancer in Libya.
5.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of prostate cancer in Libya.
6.	Histological and pathological markers of cancer progression (Ki-67, PTEN, MMR, PDL1) in Libyan patients.
7.	Pharmacological approaches to cancer treatment: chemotherapy protocols, drug resistance, and pharmacoeconomics in Libya.
8.	Immunological biomarkers and immune cell ratios as prognostic tools in cancer patients in Libya.
9.	Early screening, psychosocial factors, and oral cancer detection in Libyan communities.

Axis 2: Metabolic & Endocrine Disorders

1.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of Diabetes mellitus in Libya.
2.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of obesity and obesity-related diseases in Libya.
3.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of hyperlipidemia in Libya.
4.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of vitamin D deficiency in Libya.
5.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of endocrine aging and resilience in Libya

Axis 3: Cardiovascular & Respiratory Health

1.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of atherosclerotic cardiovascular diseases in Libya.
2.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of hypertension in Libya.
3.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of respiratory diseases (asthma, COPD) in Libya.
4.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of congenital cardiovascular anomalies in Libya.
5.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of dental and systemic risks in cardiac patients in Libya.

Axis 4: Infectious Diseases & Immunity

1.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of COVID-19 in Libya.
2.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of Hepatitis (B and C) in Libya.
3.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of Helicobacter pylori infection in Libya.
4.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of antimicrobial resistance in Libya.
5.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of oral infections and infection control in Libya.

Axis 5: Oral & Dental Health

1.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of dental caries and periodontal diseases in Libya.
2.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of oral health in medically compromised and special needs patients in Libya.
3.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of aesthetic dental conditions in Libya.
4.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of prosthodontics and dental implantology in Libya.
5.	Prevalence, causes, risk factors, clinical and laboratory characteristics, and complications of regenerative dental therapies in Libya.

Axis 6: Environmental & Sustainable Health

1.	Prevalence, causes, risk factors, and impact of pharmaceutical waste on human health and the environment in Libya.
2.	Prevalence, causes, risk factors, and impact of ecotoxicology and chemical pollutants on ecosystems in Libya.
3.	Prevalence, causes, risk factors, and impact of oxidative stress from environmental exposures in Libya.
4.	Prevalence, causes, risk factors, and impact of nutritional deficiencies on oral and systemic health in Libya.
5.	Prevalence, causes, risk factors, and impact of sustainable pharmaceutical manufacturing and renewable energy use in Libya.

Axis 7: Digital Transformation & Artificial Intelligence

1.	Applications, ethical considerations, and effectiveness of tele-pharmacy in Libya.
2.	Applications, ethical considerations, and effectiveness of electronic drug records and clinical decision support systems in Libya.
3.	Applications, ethical considerations, and effectiveness of AI in dental diagnosis and orthodontics in Libya.
4.	Applications, ethical considerations, and effectiveness of AI in prosthesis design and digital simulation in Libya.
5.	Applications, ethical considerations, and effectiveness of digital tools in monitoring stress and diagnostic accuracy in Libya.

Axis 8: Governance, Education & Professional Ethics

1.	Development, causes, challenges, and solutions in pharmaceutical governance and legislation in Libya.
2.	Development, causes, challenges, and solutions in supply chain transparency and quality management in Libya.
3.	Development, causes, challenges, and solutions in professional ethics and patient satisfaction in dental practice in Libya.
4.	Development, causes, challenges, and solutions in innovative medical education strategies and accreditation standards in Libya.
5.	Development, causes, challenges, and solutions in stress, burnout, and workforce well-being in health sciences in Libya.

Axis 9: Natural Resources & Bioeconomy

1.	Prevalence, causes, risk factors, and applications of Libyan medicinal plants (phytotherapy) in drug discovery.
2.	Prevalence, causes, risk factors, and applications of marine bio-resources in pharmaceutical innovation in Libya.
3.	Prevalence, causes, risk factors, and applications of nutritional biochemistry in health and disease in Libya.
4.	Prevalence, causes, risk factors, and applications of fluoride use in oral health in Libya.
5.	Prevalence, causes, risk factors, and applications of vitamin and mineral deficiencies in oral and systemic health in Libya.

Institutional Integration

- **Basic Medical Sciences** → Foundational biomedical research.
- **PharmD Program** → Applied pharmaceutical and clinical research.
- **Dental Program** → Specialized oral health research.
- Together, they align with the **National Strategy for Higher Education & Scientific Research (2024–2034)** and contribute to Libya's sustainable development goals.

Integrated Research Priorities – Matrix of Axes × Disciplines

Axis	Basic Medical Sciences	PharmD Program	Dental Program
1. Cancer Research	Histology (tumor tissue changes, immunohistochemistry); Pathology (Ki-67, PTEN, MMR, PDL1); Immunology (biomarkers, immune cell ratios); Pharmacology (drug resistance).	Pharmacoeconomics of cancer care; Clinical pharmacy protocols for oncology.	Oral cancer screening; Psychosocial factors in oral lesions.
2. Metabolic & Endocrine Disorders	Biochemistry (diabetes, oxidative stress, nutrition); Physiology (metabolic, aging); Immunology (inflammatory markers).	Pharmacovigilance for diabetes drugs; Rational drug use; Access to essential medicines.	Oral health in diabetic patients; Dietary impacts on oral health.
3. Cardiovascular & Respiratory Health	Anatomy (cardiovascular); Physiology (cardio-respiratory integrative); Pathology (cardiac complications).	Clinical pharmacy protocols for hypertension/asthma; Tele-pharmacy for chronic disease management.	Dental risks in cardiac patients; Anxiety management in special needs.

Axis	Basic Medical Sciences	PharmD Program	Dental Program
4. Infectious Diseases & Immunity	Microbiology (antimicrobial resistance, emerging infections, microbiome); Immunology (viral vs bacterial responses, mucosal immunity).	Anti-infective therapies; Electronic drug records for infection monitoring.	Infection control protocols; Tele-dentistry for access; AI in caries diagnosis.
5. Oral & Dental Health	Immunology (vaccination attitudes, mucosal immunity).	Pharmacovigilance for oral drugs; Phytotherapy for oral conditions.	Community dentistry (caries, periodontal disease, education, equity); Aesthetic dentistry (whitening, smile design); Prosthodontics & implantology; Regenerative dentistry (stem cells, biomaterials).
6. Environmental & Sustainable Health	Biochemistry (oxidative stress, environmental exposure).	Green pharmacy (waste management, ecotoxicology, sustainable manufacturing).	Environmental determinants of oral health; Impact of deficiencies on oral tissues.
7. Digital Transformation & AI	Physiology (digital monitoring of stress); Immunology (digital tools for biomarkers).	Tele-pharmacy; AI in pharmacy practice; Clinical decision support systems.	AI in diagnosis (caries, orthodontics, prosthesis design); Digital simulation in dental education.

Axis	Basic Medical Sciences	PharmD Program	Dental Program
8. Governance, Education & Professional Ethics	Medical education (innovative strategies, accreditation standards, burnout research).	Governance and legislation; Supply chain transparency; Quality management.	Professional ethics; Case-based learning; Patient satisfaction; Workforce well-being.
9. Natural Resources & Bioeconomy	Biochemistry (nutritional biochemistry, biomarkers).	Phytotherapy (Libyan medicinal plants); Marine bio-resources for drug discovery.	Nutrition and oral health; Fluoride use; Vitamin/mineral deficiencies.



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Part Two:

Research Priorities of the Faculty of Engineering

Axis 10: Building Pathologies in Libya

1.	Prevalence, causes, risk factors, structural and environmental characteristics, and complications of building diseases in Libya.
2.	Prevalence, causes, risk factors, and impact of construction material deterioration on building safety in Libya.
3.	Prevalence, causes, risk factors, and impact of environmental stressors (humidity, temperature, pollution) on building pathologies in Libya.
4.	Prevalence, causes, risk factors, and impact of maintenance gaps and management practices on building health in Libya.
5.	Prevalence, causes, risk factors, and impact of urban density and infrastructure stress on building pathologies in Libya.

Axis 11: Contemporary and Local Architecture in Libya

1.	Prevalence, causes, risk factors, and characteristics of contemporary architectural practices in Libya.
2.	Prevalence, causes, risk factors, and characteristics of local/traditional architecture in Libya.
3.	Prevalence, causes, risk factors, and impact of cultural heritage on architectural identity in Libya.
4.	Prevalence, causes, risk factors, and impact of sustainability and green design in contemporary Libyan architecture.
5.	Prevalence, causes, risk factors, and impact of modern technologies on architectural innovation in Libya.

Axis 12: Urban Planning and Architecture in Libya

1.	Prevalence, causes, risk factors, and impact of unregulated urban expansion on infrastructure in Libya.
2.	Prevalence, causes, risk factors, and impact of sustainable urban planning on quality of life in Libyan cities.
3.	Prevalence, causes, risk factors, and impact of environmental stressors (climate, pollution, population density) on urban planning in Libya.
4.	Prevalence, causes, risk factors, and impact of smart and digital urban planning on city management in Libya.
5.	Prevalence, causes, risk factors, and impact of integrating cultural heritage with modern urban planning in Libya.

Axis 13: Interior Design in Libya

1.	Prevalence, causes, risk factors, and characteristics of traditional and contemporary interior design in Libya.
2.	Prevalence, causes, risk factors, and impact of sustainable interior design and eco-friendly materials in Libya.
3.	Prevalence, causes, risk factors, and impact of modern technologies (virtual reality, digital modeling) on interior design development in Libya.
4.	Prevalence, causes, risk factors, and impact of psychological and social factors on the quality of interior design in Libyan buildings.
5.	Prevalence, causes, risk factors, and impact of integrating cultural identity and innovation in interior design in Libya.



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Part Three:

**Research Priorities
of the
Faculty of Islamic Studies**

Axis 14: Islamic Preaching (Da‘wah) and Fundamentals of Religion in Libya

1.	Prevalence, causes, risk factors, and challenges related to Islamic preaching discourse and its impact on social cohesion in Libya.
2.	Prevalence, causes, risk factors, and challenges related to the use of digital media in Islamic preaching in Libya.
3.	Prevalence, causes, risk factors, and challenges related to religious identity and its influence on youth and education in Libya.
4.	Prevalence, causes, risk factors, and challenges related to doctrinal approaches and their impact on intellectual and societal stability in Libya.
5.	Prevalence, causes, risk factors, and challenges related to integrating Islamic preaching with universal human values in Libya.

Axis 15: Islamic Jurisprudence and Applications in Libya

1.	Prevalence, causes, risk factors, and challenges related to Islamic jurisprudence in economic issues (financial transactions, Islamic banking) in Libya.
2.	Prevalence, causes, risk factors, and challenges related to Islamic jurisprudence in medical issues and bioethics in Libya.
3.	Prevalence, causes, risk factors, and challenges related to Islamic jurisprudence in family and social matters in Libya.
4.	Prevalence, causes, risk factors, and challenges related to Islamic jurisprudence in contemporary legislation and laws in Libya.
5.	Prevalence, causes, risk factors, and challenges related to Islamic jurisprudence in promoting social justice and good governance in Libya.