

Northern Technical University
Technical Institute of Nimrod
Department of Therapeutic Nutrition Techniques
Course Descriptions – First Stage / First Semester
Academic Year 2025–2026

**Course Descriptions – Department
of Therapeutic Nutrition
Techniques**



1. Safety of Workshop and Laboratory (TIMM108)

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code
3	3	2	Level 1 / Semester 1	Institute Requirement / Compulsory	Safety of Workshop and Laboratory	TIMM108

General Description

This course aims to introduce students to the basic principles of safety in workshops and laboratories, exposure to potential hazards during work and methods of prevention. The course covers occupational safety rules, the use of personal protective equipment, safe handling of equipment, tools and chemicals, and response procedures for accidents and emergencies. It also focuses on the importance of maintaining a safe and healthy working environment inside laboratories and workshops.

Course Objectives

- Introduce the student to the concept of occupational safety and its importance in the laboratory work environment.
- Enable the student to use personal protective equipment correctly.
- Identify types of hazards in laboratories (chemical, physical, biological).
- Understand safe handling and storage procedures for chemicals.
- Acquire skills in dealing with emergencies and first aid.
- Identify firefighting methods and evacuation plans.
- Understand laboratory waste management and relevant health legislation.

Assessment Methods

- Theoretical exams
- Quizzes
- Practical exams
- Participation and class activities
- Final exam

Course Details (Weekly Schedule)

Assessment Method	Teaching Method	Unit / Topic	Required Learning Outcomes	Hours	Week
Daily assessment	Lecture + Discussion	Introduction to occupational safety and laboratory rules	CLO1	4 hrs	1
Quiz	Lecture	Personal Protective Equipment (PPE)	CLO2	4 hrs	2
Daily assessment	Lecture + Discussion	Types of hazards in laboratories	CLO3	4 hrs	3
Assignment	Lecture	Safety when handling chemicals	CLO3	4 hrs	4
Quiz	Lecture	Storage and transport of hazardous materials	CLO3	4 hrs	5
Daily assessment	Lecture	Electrical safety in laboratories	CLO4	4 hrs	6
Assignment	Lecture	Safe use of equipment and devices	CLO3	4 hrs	7
Midterm exam	Lecture	Emergency procedures and first aid	CLO4	4 hrs	8
Quiz	Lecture	Firefighting and evacuation plans	CLO3	4 hrs	9
Assignment	Lecture	Laboratory waste management	CLO6	4 hrs	10
Daily assessment	Lecture	Biological safety	CLO3	4 hrs	11
Quiz	Lecture	Prevention of occupational injuries	CLO4	4 hrs	12
Midterm exam	Lecture	Occupational safety instructions and regulations	CLO3	4 hrs	13

Assignment	Lecture	Safety applications in the work environment	CLO3	4 hrs	14
Final assessment	Discussion	Comprehensive review and safety applications	CLO1-CLO6	4 hrs	15

Sources

- 1. Occupational safety and laboratory safety textbooks.
- 2. Lectures and study notes.
- 3. Laboratory safety guides and instructions.
- 4. Presentations and educational videos.



2. Human Biology

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code
3	3	2	Level 1 / Semester 1	Institute Requirement/ Compulsory	Human Biology	—

General Description

This course aims to introduce the student to the basic concepts of human biology, including cell theory, classification of living organisms, and characteristics of living organisms. It also covers cell structure and functions of its components such as the cell membrane and cell biochemistry, and studies cell division, genetic principles, gene expression and their relationship to biological processes in the human body. In addition, it analyzes the organization of the human body including biological systems, blood components, and the relationship between microorganisms and human health.

Course Objectives

- Understand the basic concepts of human biology including cell theory and classification of living organisms. •
- Understand cell structure and functions of its components such as the cell membrane and cell biochemistry. •
- Study cell division, genetic principles and gene expression. •
- Analyze the organization of the human body including biological systems and blood components. •
- Understand the relationship between microorganisms and human health. •

Assessment Methods

- Theoretical exams •
- Quizzes •
- Practical exams •
- Participation and class activities •
- Scientific reports •

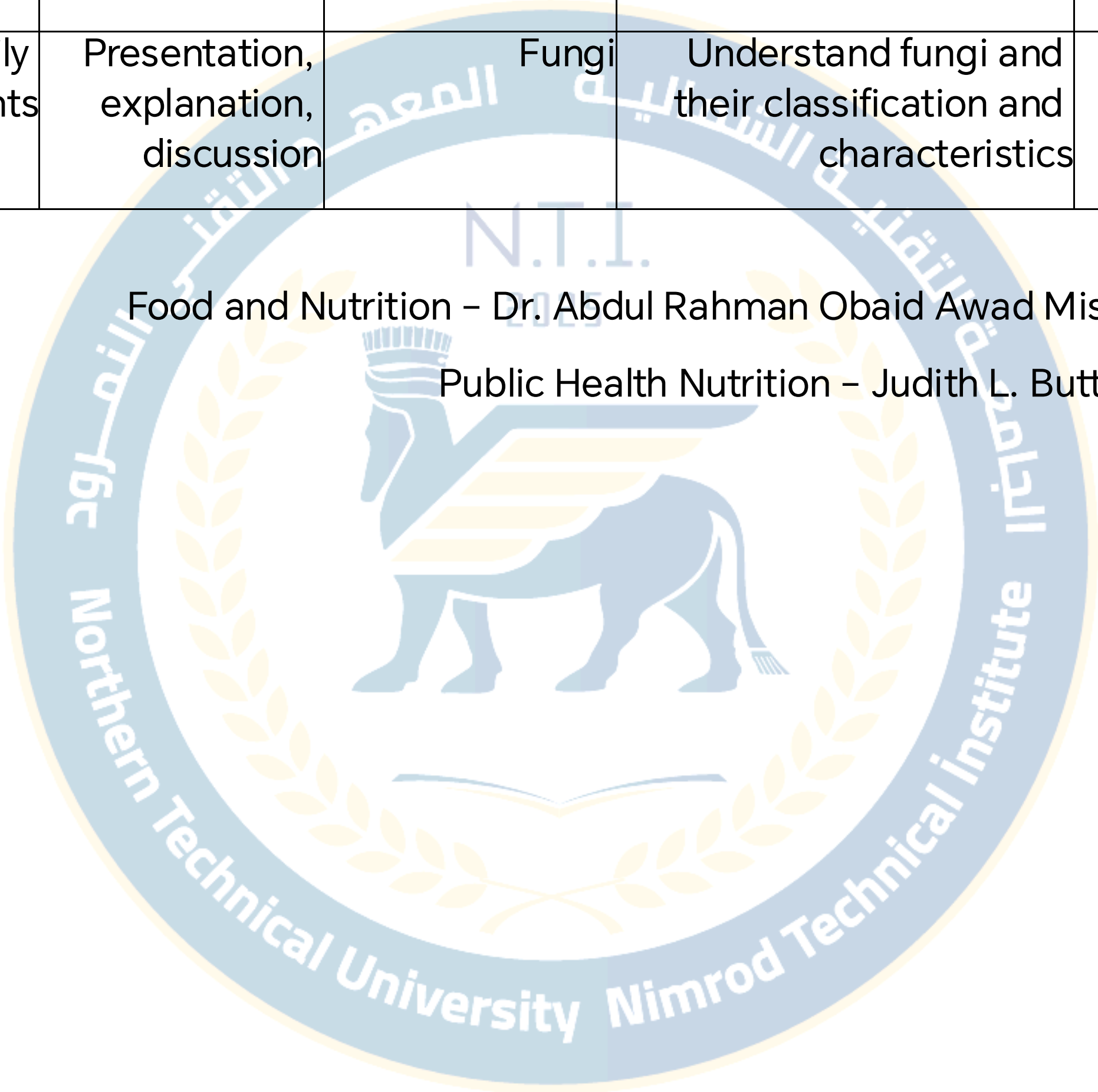
Course Details (Weekly Schedule)

Assessment Method	Teaching Method	Unit / Topic	Required Learning Outcomes	Hours	Week
Daily assessments	Presentation, explanation, discussion	Introduction to biology and cell theory	Understand the concept of biology; recall cell theory	4 hrs	1
Daily assessments	Presentation, explanation, discussion	Classification of living organisms	Understand classification of living organisms	4 hrs	2
Daily assessments	Presentation, explanation, discussion	Cell structures and physical properties	Explain cell structures and physical adaptation	4 hrs	3
Daily assessments	Presentation, explanation, discussion	Cell membrane	Present structure and function of cell membrane	4 hrs	4
Daily assessments	Presentation, explanation, discussion	Cell chemistry	Identify basic chemical compounds of the cell	4 hrs	5
Daily assessments	Presentation, explanation, discussion	Cell types	Understand cell types and their differences	4 hrs	6
Daily assessments	Presentation, explanation, discussion	Characteristics of organisms	Identify characteristics of living organisms	4 hrs	7
Exam	Presentation, editing	Cell division	Understand types and stages of cell division	4 hrs	8
Daily assessments	Presentation, explanation, discussion	Genetic principles	Introduce principles of heredity	4 hrs	9
Daily assessments	Presentation, explanation, discussion	Gene expression	Recognize gene expression and its steps	4 hrs	10
Daily assessments	Presentation, explanation, discussion	Organ systems	Familiarity with body systems	4 hrs	11

Written exam	Presentation, explanation, discussion	Review and discussion	Assess student understanding	4 hrs	12
Daily assessments	Presentation, explanation, discussion	Blood and its components	Introduction to blood and its components and functions	4 hrs	13
Daily assessments	Presentation, explanation, discussion	Viruses	Understand viruses	4 hrs	14
Daily assessments	Presentation, explanation, discussion	Fungi	Understand fungi and their classification and characteristics	4 hrs	15

Sources

- Food and Nutrition – Dr. Abdul Rahman Obaid Awad Misqar.
- Public Health Nutrition – Judith L. Buttriss.



3. Arabic Language (NTU 103)

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code
2	0	2	Level 1 / Semester 1	University Requirement / Compulsory	Arabic Language	NTU 103

General Description

The Arabic Language course is designed to build a linguistic knowledge base that aligns with the requirements of the therapeutic nutrition specialization, in terms of identifying the general foundations of Arabic sentence construction, sound linguistic formulations, accurate understanding of texts based on grammar, understanding the concept of Arabic language integrity, the role of Arabic in understanding administrative and scientific discourse, and identifying the most important linguistic errors in medical correspondence and reports.

Course Objectives

- The student acquires a comprehensive understanding of the basic concepts of Arabic and the principles of the linguistic system in an accessible manner.
- The student acquires the ability to express correctly in speaking, conversation, and writing.
- The student develops the ability to understand, listen, extract meanings, and ideas.
- The student trains in correct reading, proper pronunciation, and understanding ideas.
- The student trains in different types of reading to develop reading skills.
- The student learns the basics of spelling that enable correct word writing.
- The student improves expression of thoughts and situational requirements, whether oral or written, in correct language.

Assessment Methods

- Theoretical exams
- Quizzes
- Participation and class activities

Assignments and reports •

Course Details (Weekly Schedule)

Assessment Method	Teaching Method	Unit / Topic	Required Learning Outcomes	Hours	Week
Daily quizzes	Lecture, discussion	Parts of speech	Know parts of speech and their signs	2 hrs	1
Daily quizzes	Lecture, discussion	Subject and predicate	Identify the two pillars of the nominal sentence	2 hrs	2
Daily quizzes	Lecture, discussion	Abrogators (Kana and its sisters)	Apply rules of verbal abrogators	2 hrs	3
Daily quizzes	Lecture, discussion	Abrogators (Inna and its sisters)	Distinguish the function of	2 hrs	4
Daily quizzes	Lecture, discussion	Verbs in terms of construction and declension	Distinguish between indeclinable and declinable verbs	2 hrs	5
Daily quizzes	Lecture, discussion	Assigning verb to pronoun	Apply rules of assigning verb to pronoun	2 hrs	6
Daily quizzes	Lecture, discussion	The subject	Recognize rules of the subject	2 hrs	7
Daily quizzes	Lecture, discussion	Indefinite and definite	Distinguish between indefinite and definite	2 hrs	8
Daily quizzes	Lecture, discussion	Morphological scale	Master the morphological scale	2 hrs	9
Daily quizzes	Lecture, discussion	Plurals in Arabic	Explain plurals and their types	2 hrs	10
Daily quizzes	Lecture, discussion	Verb conjugation (soundness and weakness)	Classify verbs in terms of soundness and weakness	2 hrs	11
Daily quizzes	Lecture, discussion	Verbs in terms of simplicity and augmentation	Distinguish between simple and augmented verbs	2 hrs	12
Daily	Lecture,	Derivatives	Recognize derivatives and	2 hrs	13

quizzes	discussion		their formation	theory	
Daily quizzes	Lecture, discussion	Solar and lunar letters	Distinguish between solar and lunar letters	2 hrs theory	14
Final exam	Discussion	General review	Comprehensive review	2 hrs theory	15

Sources

Jami' al-Durus al-Arabiyya / Mustafa al-Ghalayini. .1

Sharh Matn al-Ajrumiyya / Hassan bin Ali al-Kafrawi. .2

Sharh Ibn Aqil on Alfiyyat Ibn Malik / Ibn Aqil. .3

Sharh Shudhur al-Dhahab / Ibn Hisham. .4

Sharh al-Mufasssal / Ibn Ya'ish al-Mawsili. .5



4. Principles of General Nutrition (TNT110)

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code
3	3	2	Level 1 / Semester 1	Department Requirement / Compulsory	Principles of General Nutrition	TNT110

General Description

This course aims to provide society with competent specialists committed to professional ethics in the field of therapeutic nutrition, contribute to raising the level of medical and health awareness in society, support and encourage scientific research, provide a stimulating environment for teaching and learning in therapeutic nutrition according to quality and academic accreditation standards, and enhance partnership with relevant institutions locally and internationally.

Course Objectives

- Identify the basic concepts of nutrition and public health. •
- Understand the role of nutrients in preventing chronic and infectious diseases. •
- Study nutritional needs for age groups and different health conditions. •
- Analyze national and international food policies and their impact on public health. •

Assessment Methods

- Theoretical exams •
- Quizzes •
- Practical exams •
- Participation and class activities •
- Scientific reports •

Course Details (Weekly Schedule)

Assessment	Teaching	Unit / Topic	Learning Outcomes	Hours	Week

Method	Method				
Daily quizzes	Lecture, discussion	Definition of food, its function and characteristics	Define food, its function and characteristics	4 hrs	1
Daily quizzes	Lecture, discussion	Definition of public health nutrition and the adopted approach	Explain healthy nutrition	4 hrs	2
Daily quizzes	Lecture, discussion	Strategies of public health nutrition	Strategies of public health nutrition and their applications	4 hrs	3
Daily quizzes	Lecture, discussion	Methods of assessing public health nutrition	Methods of assessing public health nutrition (Part 1)	4 hrs	4
Daily quizzes	Lecture, discussion	Methods of assessing public health nutrition	Methods of assessing public health nutrition (Part 2)	4 hrs	5
Daily quizzes	Lecture, discussion	Nutritional groups at risk	Identify at-risk nutritional groups	4 hrs	6
Daily quizzes	Lecture, discussion	Assessment plan for at-risk nutritional groups	Plan for assessing at-risk nutritional groups	4 hrs	7
Written exam	Lecture, discussion	Discussion and review	Assess student understanding	4 hrs	8
Daily quizzes	Lecture, discussion	Food preferences, types, influencing factors	Food preferences, types, influencing factors	4 hrs	9
Daily quizzes	Lecture, discussion	Food safety, types, strategies	Food safety, types, strategies	4 hrs	10
Daily quizzes	Lecture, discussion	Food safety, strategies	Food safety (Part 2)	4 hrs	11
Daily quizzes	Lecture, discussion	Discussion and review	Food safety guidelines	4 hrs	12

Daily quizzes	Lecture, discussion	Methods of food adulteration and its types	Food adulteration, types, purposes	4 hrs	13
Daily quizzes	Lecture, discussion	Food pattern and physical activity	Food pattern, physical activity and fitness	4 hrs	14
Daily quizzes	Lecture, discussion	Meal planning and its objectives	Meal planning, objectives and types	4 hrs	15

Sources

Basics of Nutrition Science – Abdul Ilah, Kareem Mar'i.
Food and Nutrition – Dr. Abdul Rahman Obaid Awad Misqar.
Public Health Nutrition – Judith L. Buttriss.

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5. Computer (NTU 102)

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code
2	1	1	Level 1 / Semester 1	University Requirement / Compulsory	Computer	NTU 102

General Description

The course aims to introduce the student to the concept of computers, their development and importance in daily and educational life, distinguish between hardware and software components and the function of each, apply file and folder management commands within the system, in addition to equipping the student with skills in using Office programs (Word, Excel, PowerPoint), creating presentations and designing charts.

Course Objectives

- The student knows the concept of computers, their development and importance in daily and educational life.
- The student distinguishes between hardware and software components and the function of each.
- The student applies file and folder management commands within the system.
- The student is able to integrate their skills in an integrated application using Office programs.

Assessment Methods

- Theoretical exams
- Quizzes
- Practical exams
- Participation and class activities

Course Details (Weekly Schedule)

Assessment Method	Teaching Method	Unit / Topic	Required Learning Outcomes	Hours	Week
Daily quizzes	Lecture, discussion	Introduction to computers, types, components	Know basic computer components	2 hrs (1 theory + 1 practical)	1
Daily quizzes	Lecture, discussion	Hardware and software components	Distinguish between software and hardware	2 hrs (1+1)	2
Daily quizzes	Lecture, discussion	Operating system, Windows main interface	Deal with the operating system	2 hrs (1+1)	3
Daily quizzes	Lecture, discussion	File and folder management	Manage files and folders	2 hrs (1+1)	4
Daily quizzes	Lecture, discussion	Microsoft Word – texts and tables	Use text formatting tools	2 hrs (1+1)	5
Daily quizzes	Lecture, discussion	Microsoft – preparing reports and research	Employ skills in creating reports	2 hrs (1+1)	6
Daily quizzes	Lecture, discussion	Microsoft – introduction	Explain the concept of spreadsheets	2 hrs (1+1)	7
Daily quizzes	Lecture, discussion	Microsoft – functions and charts	Apply formulas and functions	2 hrs (1+1)	8
Daily quizzes	Lecture, discussion	Microsoft PowerPoint – preparing presentations	Know the concept of presentations	2 hrs (1+1)	9
Daily quizzes	Lecture, discussion	Microsoft PowerPoint – presentations	Design a presentation	2 hrs (1+1)	10
Daily quizzes	Lecture, discussion	Introduction to the Internet and information security	Explain the concept of the Internet	2 hrs (1+1)	11
Daily quizzes	Lecture, discussion	Scientific research via the Internet	Employ the Internet in scientific research	2 hrs (1+1)	12

Daily quizzes	Lecture, discussion	Review and applications	Review and applications	2 hrs (1+1)	13
Daily quizzes	Lecture, discussion	Review and applications	Review and applications	2 hrs (1+1)	14
Written exam	Lecture, discussion	Final exam	Final exam	2 hrs (1+1)	15

Sources

1. Principles of Computers and Their Applications – Dr. Abdullah bin Ibrahim Al-Mousa and Dr. Mohammed bin Abdullah Al-Shahri, Dar Al-Marikh Publishing, Riyadh, 5th Edition 2020.

2. GCFGlobal – Computer Basics: <https://edu.gcfglobal.org/en/computerbasics>



6. Medical Terminology (TIMM109)

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code
2	0	2	Level 1 / Semester 1	Institute Requirement / Compulsory	Medical Terminology	TIMM109

General Description

This course aims to introduce the student to the basic elements of forming medical terms (root, prefix, suffix, and combining form), how to combine them to form terms and decode them. It also aims to analyze medical terms related to each body system (heart, respiratory, digestive, muscular, etc.), understand the relationship between the term and anatomical or pathological function, and apply medical terminology correctly in writing medical reports, describing cases, and communicating with the health team.

Course Objectives

- The student recognizes the basic elements of forming medical terms and how to combine them. •
- The student analyzes medical terms related to each body system. •
- The student applies medical terminology correctly in writing medical reports and communicating with the health team. •
- The student distinguishes between types of medical prefixes and suffixes and their uses. •
- The student recognizes common medical tests. •

Assessment Methods

- Theoretical exams •
- Quizzes •
- Participation and class activities •
- Scientific reports •

Course Details (Weekly Schedule)

Assessment Method	Teaching Method	Unit / Topic	Learning Outcomes	Hours	Week
Daily quizzes	Lecture, discussion	Introduction to medical terminology	Concept of terminology	2 hrs	1
Daily quizzes	Lecture, discussion	Rules of forming medical terms	Rules of forming medical terms	2 hrs theory	2
Daily quizzes	Lecture, discussion	Medical suffixes (surgical and diagnostic)	Types of medical suffixes (Part 1)	2 hrs theory	3
Daily quizzes	Lecture, discussion	Medical suffixes (pathological and grammatical)	Types of medical suffixes (Part 2)	2 hrs theory	4
Daily quizzes	Lecture, discussion	Medical prefixes (location, number, measurement)	Types of medical prefixes (Part 1)	2 hrs theory	5
Daily quizzes	Lecture, discussion	Medical prefixes (negation, time, place)	Types of medical prefixes (Part 2)	2 hrs theory	6
Daily quizzes	Lecture, discussion	Musculoskeletal system terms	Musculoskeletal system terms	2 hrs theory	7
Written exam	Lecture, discussion	Midterm exam	Assess student understanding	2 hrs theory	8
Daily quizzes	Lecture, discussion	Cardiovascular system terms	Cardiovascular system terms	2 hrs theory	9
Daily quizzes	Lecture, discussion	Respiratory and digestive system terms	Respiratory and digestive system terms	2 hrs theory	10
Daily quizzes	Lecture, discussion	Urinary and reproductive system terms	Urinary and reproductive system terms	2 hrs theory	11
Written exam	Lecture, discussion	Written exam	Assess student understanding	2 hrs theory	12

Daily quizzes	Lecture, discussion	Muscular and glandular system terms	Muscular and glandular system terms	2 hrs theory	13
—	—	—	—	2 hrs theory	14
—	—	—	—	2 hrs theory	15

Sources

- The Language of Medicine (13th ed., 2025) – Davi-Ellen Chabner.
- Medical Terminology for Healthcare Professions.

7. General Histology (TNT112)

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code
3	3	3	Level 1 / Semester 1	Department Requirement / Compulsory	General Histology	TNT112

General Description

This course aims to understand the histological and microscopic structure of human tissue, study cellular and functional structure, differentiate between different types of tissues, and study systemic histological structure.

Course Objectives

- Understand the histological and microscopic structure of human tissue.
- Study cellular and functional structure.
- Differentiate between different types of tissues.
- Study systemic histological structure.

Assessment Methods

- Theoretical exams
- Quizzes
- Practical exams

Participation and class activities •

Scientific reports •

Course Details (Weekly Schedule)

Assessment Method	Assessment Method	Unit / Topic	Required Learning Outcomes	Hours	Week
Daily quizzes	Lecture, lab	Cell shape	Cell shape	5 hrs	1
Daily quizzes	Lecture, lab	Epithelial tissue	Epithelial tissue and its types	5 hrs	2
Daily quizzes	Lecture, lab	Applied epithelial tissue	Applied epithelial tissue	5 hrs	3
Daily quizzes	Lecture, lab	Types of connective tissue	Types of connective tissue	5 hrs	4
Daily quizzes	Lecture, lab	Loose connective tissue	Loose connective tissue	5 hrs	5
Daily quizzes	Lecture, lab	Dense connective tissue	Dense connective tissue	5 hrs	6
Daily quizzes	Lecture, lab	Specialized connective tissue	Specialized connective tissue	5 hrs	7
Written exam	Lecture, lab	Bone tissue	Bone tissue	5 hrs	8
Daily quizzes	Lecture, lab	Cartilage tissue	Cartilage tissue	5 hrs	9
Oral quizzes	Presentation	Muscular tissue	Muscular tissue	5 hrs	10
Oral quizzes	Presentation	Muscular tissue	Muscular tissue	5 hrs	11
Written exam	Presentation	Reproductive system	Reproductive system	5 hrs	12
Written exam	Presentation	Digestive system and accessory glands	Digestive system and accessory glands	5 hrs	13

Written exam	Presentation	Circulatory system (arterial)	Circulatory system (arterial)	5 hrs	14
Written exam	Presentation	Circulatory system	Circulatory system	5 hrs	15

8. Food Safety and Hygiene (TNT114)

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code
3	3	2	Level 1 / Semester 1	Department Requirement / Compulsory	Food Safety and Hygiene	TNT114

General Description

This course aims to introduce students to the basic concepts of nutrition and general safety, sources of food contamination (biological, chemical, physical), and safe temperatures for preserving and cooking food. The course also covers personal hygiene for food workers, cleaning and sanitizing equipment and food handling areas, foodborne diseases and prevention methods, in addition to pest control in food facilities and legislation and standards for food safety.

Course Objectives

- Identify the basic concepts of nutrition and general safety.
- Identify sources of food contamination (biological, chemical, physical).
- Identify safe temperatures for preserving and cooking food.
- Understand the importance of personal hygiene for food workers.
- Identify methods of cleaning and sanitizing equipment and food handling areas.
- Understand foodborne diseases and prevention methods.
- Identify legislation and standards for food safety.

Assessment Methods

- Theoretical exams

- Quizzes •
- Practical exams •
- Participation and class activities •
- Scientific reports •
- Final exam •

Course Details (Weekly Schedule)

Assessment Method	Assessment Method	Unit / Topic	Learning Outcomes	Hours	Week
Daily quizzes	Lecture, discussion	Introduction to food safety and hygiene	Define food, understand food safety and hygiene and characteristics	4 hrs	1
Daily quizzes	Lecture, discussion	Food safety and its importance	Explain food safety and its importance in protecting public health	4 hrs	2
Daily quizzes	Lecture, discussion	Types and sources of food contamination	Identify sources of food contamination	4 hrs	3
Daily quizzes	Lecture, discussion	Microorganisms associated with food	Identify microorganisms associated with food	4 hrs	4
Daily quizzes	Lecture, discussion	Foodborne diseases	Identify foodborne diseases and prevention methods	4 hrs	5
Daily quizzes	Lecture, discussion	Personal hygiene for food workers	Understand the necessity of personal hygiene for workers	4 hrs	6
Daily quizzes	Lecture, discussion	Cleaning and sanitizing equipment and food handling areas	Identify cleaning and sanitizing of equipment and food handling areas	4 hrs	7

Written exam	Lecture, discussion	Discussion and review	Assess student understanding	4 hrs	8
Daily quizzes	Lecture, discussion	Temperature control and food safety	Identify temperature control and food safety	4 hrs	9
Daily quizzes	Lecture, discussion	Safe receiving and storage of food	Understand safe receiving and storage of food	4 hrs	10
Daily quizzes	Lecture, discussion	Food safety, strategies, guidelines (Part 2)	Write a report on food safety strategies	4 hrs	11
Written exam	Lecture, discussion	Discussion and review	Assess student understanding	4 hrs	12
Daily quizzes	Lecture, discussion	Good health practices in food manufacturing	Identify good health practices	4 hrs	13
Daily quizzes	Lecture, discussion	Pest control in food facilities	Understand pest control in food facilities	4 hrs	14
—	—	—	—	4 hrs	15

Sources

- Essentials of Food Safety and Sanitation •
- Food Safety Management •
- Food Hygiene and Sanitation •
- Modern Food Microbiology •
- Principles of Food Sanitation •
- Food Microbiology •
- International Journal of Food Microbiology •
- Journal of Food Protection •
- Foodborne Pathogens and Disease •

9. Nutritional Epidemiology (TNT117)

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code
3	2	2	Level 1 / Semester 1	Department Requirement / Compulsory	Nutritional Epidemiology	TNT117

General Description

This course aims to introduce students to the science of nutritional epidemiology, its relationship to public health, basic epidemiological measures, and methods of measuring and assessing food consumption at the individual and community level. The course also covers designs of nutritional epidemiological studies (descriptive, retrospective, longitudinal), epidemiology of malnutrition diseases and non-communicable diseases related to nutrition, in addition to nutritional intervention strategies and improving society from food epidemics.

Course Objectives

- Knowledge level (remember and understand): The student defines the basic concepts of nutritional epidemiology and explains the relationship between food and chronic and infectious diseases.
- Analytical level (application and analysis): The student analyzes statistical health and nutritional data for the community and links nutrient deficiencies with the emergence of epidemics.
- Evaluative and skill level (evaluation and innovation): The student evaluates the nutritional status of population groups and proposes preventive strategic solutions and programs to reduce epidemics related to malnutrition.

Assessment Methods

- Theoretical exams
- Quizzes

- Practical exams
- Participation and class activities
- Scientific reports
- Final exam

Course Details (Weekly Schedule)

Method	Method	Unit / Topic	Learning Outcomes	Hours	Week
Daily quizzes	Lecture	Introduction to nutritional epidemiology, its history and relationship to public health	Recognize field nutritional survey forms and their design	4 hrs	1
Daily quizzes	Lecture	Epidemiological measures	Calculate incidence and prevalence rates of nutritional diseases	4 hrs	2
Daily quizzes	Lecture	Incidence	Practical training on 24-hour food recall form	4 hrs	3
Daily quizzes	Lecture	Designs of nutritional epidemiological studies (descriptive and retrospective)	Analyze a case study of a specific nutrient deficiency disease	4 hrs	4
Daily quizzes	Lecture	Longitudinal epidemiological studies (Cohort)	Follow up and audit longitudinal survey forms and calculate relative risks	4 hrs	5
Daily quizzes	Lecture	Epidemiology of malnutrition diseases (wasting, stunting, micronutrient deficiencies)	Methods of anthropometric measurement (weight, height, BMI)	4 hrs	6
Daily quizzes	Lecture	Midterm exam (theoretical and practical)	Assess practical skills in measuring physical and epidemiological indicators	4 hrs	7
Written exam	Lecture	Epidemiology of non-communicable diseases related to nutrition (obesity,	Plan a healthy community food basket to prevent chronic	4 hrs	8

		diabetes, heart disease)	diseases		
Daily quizzes	Lecture, discussion	Food preferences and influencing factors	Recognize food preferences, types, influencing factors	4 hrs	9
Daily quizzes	Lecture, discussion	Field visit or simulation or analysis of health institution data	Nutritional intervention strategies and community immunization from food epidemics	4 hrs	10
Daily quizzes	Lecture, discussion	Preparing a presentation for a proposed community program to combat obesity	National and international policies and programs (WHO, UNICEF)	4 hrs	11
Written exam	Lecture, discussion	Discussion and review	Assess student understanding	4 hrs	12
Daily quizzes	Lecture, discussion	Food adulteration, types, purposes and methods	Recognize methods of food adulteration	4 hrs	13
Daily quizzes	Lecture, discussion	Food pattern, physical activity and fitness	Explain the concept of food pattern and physical activity	4 hrs	14
Daily quizzes	Lecture, discussion	Meal planning and its objectives	Explain meal planning and its objectives	4 hrs	15

Sources

- Main textbook: Nutritional Epidemiology – Walter Willett (latest edition). •
- Scientific journals: Journal of Nutritional Epidemiology and approved publications in therapeutic nutrition specialization. •
- WHO guides for nutritional surveys and malnutrition classifications. •

10. Pathophysiology (TNT115)

Units	Practical Hours	Theoretical Hours	Course Type&Semester	Course Name	Course Code
2	0	2	Department Requirement / Compulsory	Pathophysiology	TNT115

General Description

This course aims to introduce students to the basic concepts of pathophysiology, analyze cellular adaptation mechanisms and types of cell injury and death, assess disorders affecting body fluids, electrolytes and acid-base balance, and apply the knowledge gained in pathophysiology to plan preventive and therapeutic programs.

Course Objectives

- The student understands the basic concepts of pathophysiology.
- The student analyzes cellular adaptation mechanisms and types of cell injury and death.
- The student assesses disorders affecting body fluids, electrolytes and acid-base balance.
- The student applies the knowledge gained in pathophysiology to plan preventive and therapeutic programs.

Assessment Methods

- Theoretical exams
- Quizzes
- Participation and class activities
- Scientific reports
- Final exam

Course Details (Weekly Schedule)

Assessment Method	Teaching Method	Unit / Topic	Required Learning Outcomes	Hours	Week
Daily quizzes	Lecture, discussion	Introduction to pathophysiology	Define the modern concept of diseases, understand food function and characteristics in prevention	2 hrs theory	1
Daily quizzes	Lecture, discussion	Healthy nutrition and disease prevention	Explain the concept of healthy nutrition and its role in disease prevention	2 hrs theory	2
Daily quizzes	Lecture, discussion	Public health strategies and nutrition	Explain public health strategies and their application in prevention	2 hrs theory	3
Daily quizzes	Lecture, discussion	Assessment of healthy nutrition (Part 1) and its relationship to pathological condition	Explain how to assess healthy nutrition	2 hrs theory	4
Daily quizzes	Lecture, discussion	Assessment of healthy nutrition (Part 2)	Recognize methods of assessing healthy nutrition and linking them to pathological disorders	2 hrs theory	5
Daily quizzes	Lecture, discussion	Nutritional groups at risk	Distinguish at-risk nutritional groups in the community	2 hrs theory	6
Daily quizzes	Lecture, discussion	Assessment plan for at-risk nutritional groups	Recognize the assessment plan for at-risk nutritional groups	2 hrs theory	7
Written exam	Lecture, discussion	Written exam	Assess student understanding of basic concepts of pathophysiology	2 hrs theory	8
Daily quizzes	Lecture, discussion	Food preferences and influencing factors	Recognize food preferences and their relationship to pathological condition	2 hrs theory	9

Daily quizzes	Lecture, discussion	Food safety and its types	Understand food safety, its types and relationship to disease prevention	2 hrs theory	10
Daily quizzes	Lecture, discussion	Food safety strategies	Write a report on food safety strategies	2 hrs theory	11
Written exam	Lecture, discussion	Written exam	Assess student understanding of advanced topics	2 hrs theory	12
Daily quizzes	Lecture, discussion	Food adulteration	Recognize methods of food adulteration, types and impact on health	2 hrs theory	13
Daily quizzes	Lecture, discussion	Food pattern and physical activity	Explain the concept of food pattern and relationship to physical activity and disease prevention	2 hrs theory	14
Daily quizzes	Lecture, discussion	Meal planning and its objectives	Explain meal planning and its objectives in the context of prevention and treatment	2 hrs theory	15

Sources

- Journal of Pathophysiology
- The American Journal of Pathology
- Nature Reviews Disease Primers
- WHO report on non-communicable diseases.

11. Sport (NTU) – Continued

Assessment Method	Assessment Method	Unit / Topic	Required Learning Outcomes	Hours	Week
	Daily quizzes	Types of sports and their classifications	Distinguish between individual and team sports and their characteristics	2 hrs (1 theory + 1 practical)	2
	Daily quizzes	Physical fitness and public health	Explain the effect of physical activity on enhancing physical and psychological health	2 hrs (1+1)	3
	Daily quizzes	Warm-up, preparation and readiness	Apply warm-up and physical preparation principles before sports activity	2 hrs (1+1)	4
	Daily quizzes	Common sports injuries	Identify common sports injuries and their causes	2 hrs (1+1)	5
	Daily quizzes	First aid for sports injuries	Apply first aid procedures for minor sports injuries	2 hrs (1+1)	6
	Daily quizzes	Basic skills in basketball (1)	Perform ball holding and passing skills in basketball correctly	2 hrs (1+1)	7
	Daily quizzes	Basic skills in basketball (2)	Perform dribbling and shooting skills according to correct technical foundations	2 hrs (1+1)	8
	Daily quizzes	Basketball laws and applications	Apply basic rules and basketball law during practical performance	2 hrs (1+1)	9
	Daily quizzes	Basic skills in volleyball (1)	Perform serving and passing skills in volleyball correctly	2 hrs (1+1)	10
	Daily quizzes	Basic skills in volleyball (2)	Perform receiving and setting skills according to technical requirements	2 hrs (1+1)	11

	Written exam	Volleyball laws and applications	Apply basic rules and volleyball law during practical practice	2 hrs (1+1)	12
	Daily quizzes	Sports values and personal discipline	Demonstrate commitment to sports discipline, teamwork and responsibility	2 hrs (1+1)	13
	Daily quizzes	Sports participation and self-motivation	Participate effectively in sports activities contributing to increased engagement and self-motivation	2 hrs (1+1)	14
	Daily quizzes	Practical and final evaluation of sports skills	Employ acquired skills and knowledge in integrated practical performance and self-assessment of sports performance	2 hrs (1+1)	15

Sources

Alawi, Mohammed Hassan. *Science of Sports Training*. 14th Edition, Dar Al-Ma'arif, Cairo, 2002.

Suggested electronic references: World Health Organization (WHO) – Physical Activity.

12. General Anatomy (TNT125)

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code

3	3	3	Level 1 / Semester 2	Department Requirement / Compulsory	General Anatomy	TNT125
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General Description

This course aims to introduce students to human anatomy sciences, enable them to understand the functional relationship between bones, joints and muscles in the upper and lower limbs, trace the anatomical pathways of major nerves and major arteries in the limbs, understand the anatomical basis of common clinical conditions, and identify and name major anatomical structures using accurate international anatomical terminology.

Course Objectives

- The student realizes the functional relationship between bones, joints and muscles in the upper and lower limbs.
- The student is able to trace the anatomical pathways of major nerves (such as the brachial and lumbar plexuses) and major arteries in the limbs, and predict the functional effects of any injury to them.
- The student understands the anatomical basis of common clinical conditions, such as nerve entrapment syndromes and safe intramuscular injection sites.
- The student becomes able to identify and name the major anatomical structures of the upper and lower limbs on anatomical specimens or illustrations, using accurate international anatomical terminology.

Assessment Methods

- Theoretical exams
- Quizzes
- Practical exams
- Participation and class activities
- Scientific reports
- Final exam

Course Details (Weekly Schedule)

Assessment	Teaching	Unit / Topic	Required Learning Outcomes	Hours	Week
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Method	Method				
Daily quizzes	Lecture, lab	Introduction to anatomy, levels of body organization and anatomical positions	Define anatomy, levels of body organization, understand anatomical position and basic planes	5 hrs	1
Daily quizzes	Lecture, lab	Body regions and contents, planes and sections of the body	Identify major body regions and their contents, understand and distinguish different body planes and sections	5 hrs	2
Daily quizzes	Lecture, lab	Directional terminology, tissues and membranes	Use directional anatomical terminology correctly, distinguish between basic types of tissues and membranes	5 hrs	3
Daily quizzes	Lecture, lab	Anatomy of the upper limbs	Identify major bones and muscles of the upper limb, identify major nerves and blood vessels	5 hrs	4
Daily quizzes	Lecture, lab	Anatomy of the lower limbs	Identify major bones and muscles of the lower limb, identify major nerves and blood vessels	5 hrs	5
Daily quizzes	Lecture, lab	Thoracic anatomy	Identify major components of the thoracic cavity, locate and function of basic thoracic organs	5 hrs	6
Daily quizzes	Lecture, lab	Abdominal anatomy	Identify major components of the abdominal cavity, locate and function of basic abdominal organs	5 hrs	7
Written exam	Lecture, lab	Pelvic anatomy	Identify pelvic bones and cavities, identify major pelvic organs and their functions	5 hrs	8

Daily quizzes	Lecture, lab	Head and neck anatomy	Identify major bones and muscles of the head and neck, identify important structures in the region	5 hrs	9
Daily quizzes	Lecture, lab	Musculoskeletal system anatomy	Understand basic structure of bones and joints, distinguish between muscle types in the body	5 hrs	10
Daily quizzes	Lecture, lab	Digestive system anatomy	Identify major organs of the digestive system, understand the basic pathway of the digestive tract	5 hrs	11
Written exam	Lecture, lab	Cardiovascular system anatomy	Identify basic structure of the heart and circulation, understand blood flow in the major circulation	5 hrs	12
Daily quizzes	Lecture, lab	Respiratory system anatomy	Identify major organs of the respiratory system, understand the basic pathway of air in the respiratory system	5 hrs	13
Daily quizzes	Lecture, lab	Urinary system anatomy	Identify major organs of the urinary system, understand the basic pathway of urine in the urinary system	5 hrs	14
Daily quizzes	Lecture, lab	Reproductive system anatomy	Identify male and female reproductive organs, understand basic structure of reproductive systems	5 hrs	15

Sources

- *Clinically Oriented Anatomy* – Keith L. Moore, Arthur F. Dalley, and Anne M. R. Agur.
- *Gray's Anatomy: The Anatomical Basis of Clinical Practice* (42nd ed.) – Standing, S. (Ed.). (2021). Elsevier.



13. Public Health Nutrition (TNT116)

Units	Practical Hours	Theoretical Hours	Level&Sem ester	Course Type	Course Name	Course Code
3	2	2	Level 1 / Semester 1	Department Requirement / Compulsory	Public Health Nutrition	TNT116

General Description

This course aims to introduce students to the basic concepts of nutrition and public health, understand the role of nutrients in preventing chronic and infectious

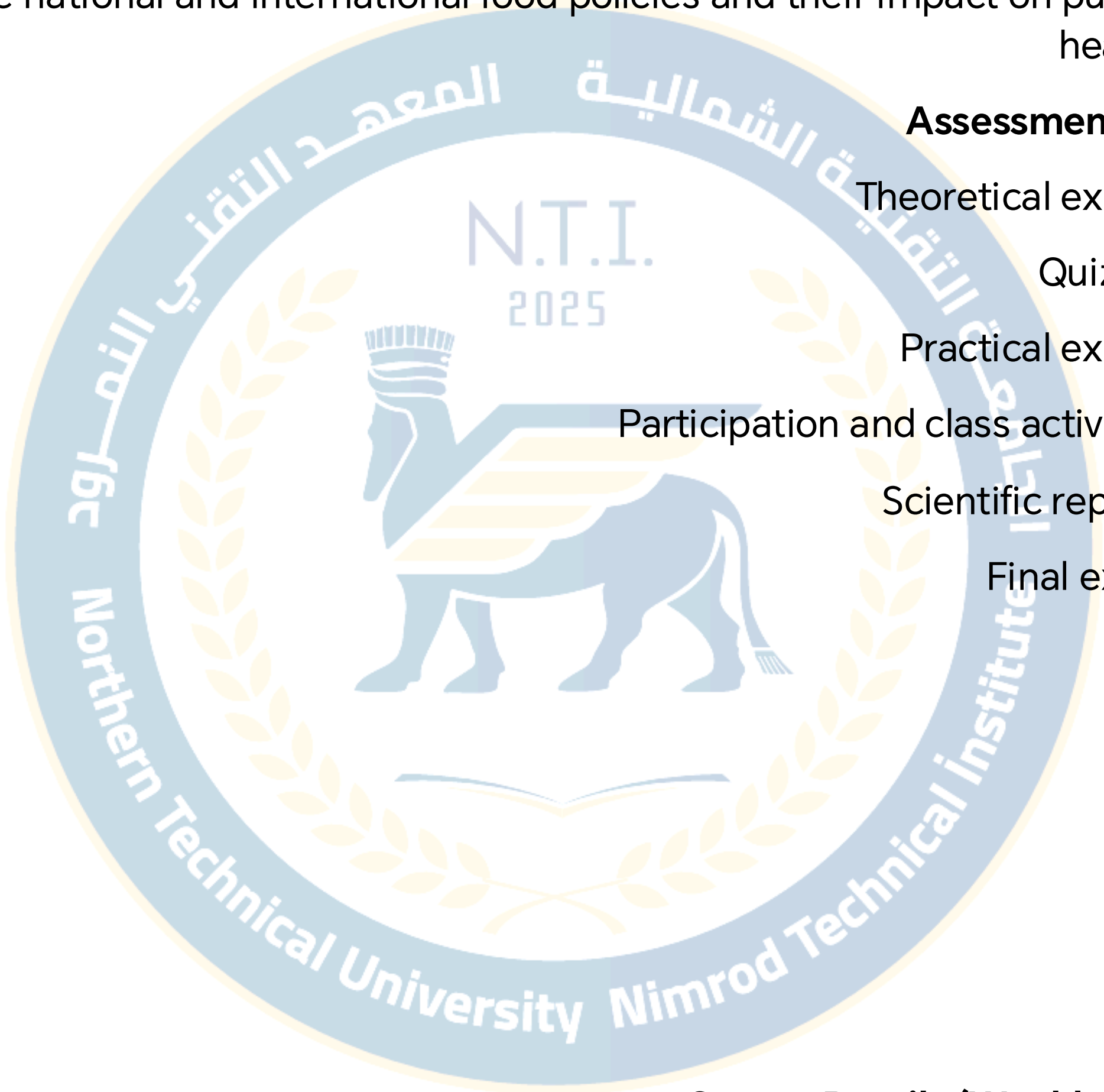
diseases, study nutritional needs for age groups and different health conditions, and analyze national and international food policies and their impact on public health.

Course Objectives

- Identify the basic concepts of nutrition and public health.
- Understand the role of nutrients in preventing chronic and infectious diseases.
- Study nutritional needs for age groups and different health conditions.
- Analyze national and international food policies and their impact on public health.

Assessment Methods

- Theoretical exams
- Quizzes
- Practical exams
- Participation and class activities
- Scientific reports
- Final exam



Course Details (Weekly Schedule)

Assessment Method	Teaching Method	Unit / Topic	Required Learning Outcomes	Hours	Week
Daily quizzes	Lecture, discussion	Definition of food, its function and characteristics	Define food, its function and characteristics	4 hrs	1

Daily quizzes	Lecture, discussion	Definition of public health nutrition and the adopted approach	Explain healthy nutrition	4 hrs	2
Daily quizzes	Lecture, discussion	Strategies of public health nutrition	Strategies of public health nutrition and their applications	4 hrs	3
Daily quizzes	Lecture, discussion	Methods of assessing public health nutrition	Methods of assessing public health nutrition (Part 1)	4 hrs	4
Daily quizzes	Lecture, discussion	Methods of assessing public health nutrition	Methods of assessing public health nutrition (Part 2)	4 hrs	5
Daily quizzes	Lecture, discussion	Nutritional groups at risk	Identify at-risk nutritional groups	4 hrs	6
Daily quizzes	Lecture, discussion	Assessment plan for at-risk nutritional groups	Plan for assessing at-risk nutritional groups	4 hrs	7
Written exam	Lecture, discussion	Discussion and review	Assess student understanding	4 hrs	8
Daily quizzes	Lecture, discussion	Food preferences, types, influencing factors	Food preferences, types, influencing factors	4 hrs	9
Daily quizzes	Lecture, discussion	Food safety, types, strategies	Food safety, types, strategies	4 hrs	10
Daily quizzes	Lecture, discussion	Food safety, strategies	Food safety (Part 2)	4 hrs	11
Daily quizzes	Lecture, discussion	Discussion and review	Food safety guidelines	4 hrs	12
Daily quizzes	Lecture, discussion	Methods of food adulteration and its types	Food adulteration, types, purposes	4 hrs	13
Daily quizzes	Lecture, discussion	Food pattern and physical activity	Food pattern, physical activity and fitness	4 hrs	14

Daily quizzes	Lecture, discussion	Meal planning and its objectives	Meal planning, objectives and types	4 hrs	15
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Sources

- Food and Nutrition – Dr. Abdul Rahman Obaid Awad Misqar. •
- Public Health Nutrition – Judith L. Buttriss. •



14. Biochemistry (TNT118)

Units	Practical Hours	Theoretical Hours	Level&Seme ster	Course Type	Course Name	Course Code

3	2	2	Level 1 / Semester 1	Department Requirement / Compulsory	Biochemistry	TNT118
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General Description

This course aims to introduce students to the basics of biochemistry and clinical laboratory techniques, provide them with general knowledge of devices and equipment used in clinical chemistry laboratories and how to operate them, develop their skills in interpreting laboratory results and linking them to pathological conditions, and prepare them to understand the relationship between biochemical reactions and physiological functions of the human body.

Course Objectives

- Introduce students to the basics of biochemistry and clinical laboratory techniques.
- Provide students with general knowledge of devices and equipment used in clinical chemistry laboratories and how to operate them.
- Develop students' skills in interpreting laboratory results and linking them to pathological conditions.
- Prepare students to understand the relationship between biochemical reactions and physiological functions of the human body.
- Train students to perform clinical chemical analyses such as measuring glucose, cholesterol, triglycerides, proteins, and albumin in blood.
- Enable students to use analytical devices such as Spectrophotometer, ELISA, VIDAS, E411 with high efficiency.
- Enhance the ability to interpret pathological disorders resulting from defects in biochemical processes.

Assessment Methods

- Theoretical exams
- Quizzes
- Practical exams
- Participation and class activities
- Scientific reports
- Final exam

Course Details (Weekly Schedule)

Assessment Method	Assessment Method	Practical Content	Theoretical Content	Hours	Week
Daily quizzes	Lecture, lab	Explanation of spectrophotometer	Cells and units of life	4 hrs	1
Daily quizzes	Lecture, lab	Spectrophotometer reactions	Carbohydrates: definition and functions	4 hrs	2
Daily quizzes	Lecture, lab	Blood sugar measurement	Carbohydrates: classification and digestion	4 hrs	3
Daily quizzes	Lecture, lab	Blood cholesterol measurement	Lipids: definition and functions	4 hrs	4
Daily quizzes	Lecture, lab	Triglycerides measurement	Lipids: classification and digestion	4 hrs	5
Daily quizzes	Lecture, lab	Total protein measurement	Amino acids and proteins: definition	4 hrs	6
Daily quizzes	Lecture, lab	Albumin measurement	Amino acids and proteins: classification	4 hrs	7
Written exam	Lecture, lab	Explanation of hormone device	Hormones: definition and classification	4 hrs	8
Daily quizzes	Lecture, lab	Explanation of ELISA device	Hormones: physiological functions	4 hrs	9
Daily quizzes	Lecture, lab	Explanation of VIDAS device	Nucleotides and nucleic acids	4 hrs	10
Daily quizzes	Lecture, lab	Explanation of E411 device	Nucleic acids and their functions	4 hrs	11
Written exam	Lecture, lab	Amylase activity measurement	Enzymes: general characteristics	4 hrs	12
Daily quizzes	Lecture, lab	Lipase activity measurement	Enzymes: influencing factors	4 hrs	13

Daily quizzes	Lecture, lab	Visit to educational laboratories	Vitamins: classification	4 hrs	14
Daily quizzes	Lecture, lab	General review	General review	4 hrs	15

Sources

Lippincott's Illustrated Reviews: Biochemistry •

Clinical Biochemistry – Michael Lieberman •

PubMed, NCBI, Medline •

15.Human Metabolism (TNT111)

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code
3	3	2	Level 1 / Semester 1	Department Requirement / Compulsory	Human Metabolism	TNT111

General Description

This course aims to introduce students to the basics of biochemistry and clinical laboratory techniques, provide them with general knowledge of devices and equipment used in clinical chemistry laboratories and how to operate them, develop their skills in interpreting laboratory results and linking them to pathological conditions, prepare them to understand the relationship between biochemical reactions and physiological functions of the human body, and introduce them to the basic biochemical principles of biomolecules (carbohydrates, lipids, proteins, enzymes, vitamins, nucleic acids).

Course Objectives

- Introduce students to the basics of biochemistry and clinical laboratory techniques.
- Provide students with general knowledge of devices and equipment used in clinical chemistry laboratories and how to operate them.
- Develop students' skills in interpreting laboratory results and linking them to pathological conditions.

- Prepare students to understand the relationship between biochemical reactions and physiological functions of the human body.
- Train students to perform clinical chemical analyses such as measuring glucose, cholesterol, triglycerides, proteins, and albumin in blood.
- Enable students to use analytical devices such as Spectrophotometer with high efficiency.
- Introduce students to the basic biochemical principles of biomolecules (carbohydrates, lipids, proteins, enzymes, vitamins, nucleic acids).
- Enhance the ability to interpret pathological disorders resulting from defects in biochemical processes.
- Develop students' skills in organized laboratory work and following professional safety procedures.

Assessment Methods

- Theoretical exams
- Quizzes
- Practical exams
- Participation and class activities
- Scientific reports
- Final exam

Course Details (Weekly Schedule)

Assessment Method	Teaching Method	Practical Content	Theoretical Content	Hours	Week
Daily quizzes	Lecture, lab	Introduction to clinical biochemistry	Introduction to human metabolism	4 hrs	1
Daily quizzes	Lecture, lab	Basics of color measurement and spectrophotometry	Enzymes	4 hrs	2
Daily quizzes	Lecture, lab	Fasting and postprandial blood sugar measurement	Michaelis-Menten theory	4 hrs	3
Daily quizzes	Lecture, lab	Glucose tolerance test	Carbohydrate metabolism	4 hrs	4
Daily quizzes	Lecture, lab	Total cholesterol estimation in serum	Lactic acid fermentation	4 hrs	5
Daily quizzes	Lecture, lab	Triglycerides determination in serum	Krebs cycle	4 hrs	6
Daily quizzes	Lecture, lab	Separation of lipoprotein cholesterol fractions	Electron transport chain	4 hrs	7
Written exam	Lecture, lab	Ketone bodies estimation in urine	Fructose metabolism	4 hrs	8
Daily quizzes	Lecture, lab	Total protein estimation in serum	Galactose metabolism	4 hrs	9
Daily quizzes	Lecture, lab	Albumin determination in serum	Glycogen metabolism	4 hrs	10
Daily quizzes	Lecture, lab	Urea estimation in serum	Protein metabolism	4 hrs	11
Written exam	Lecture, lab	Uric acid estimation in serum	Protein synthesis	4 hrs	12
Daily quizzes	Lecture, lab	Amylase enzyme determination in serum	Lipid metabolism	4 hrs	13
Daily quizzes	Lecture, lab	Calcium estimation in serum	Cholesterol metabolism	4 hrs	14

Daily quizzes	Lecture, lab	Phosphorus estimation in serum	Nucleotide metabolism	4 hrs	15
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Sources

- Lippincott's Illustrated Reviews: Biochemistry
- Clinical Biochemistry – Michael Lieberman
- PubMed, NCBI, Medline



16. Physiology (TIMM106)

Units	Practical Hours	Theoretical Hours	Level&Semester	Course Type	Course Name	Course Code
3	2	2	Level 1 / Semester 1	Institute Requirement / Compulsory	Physiology	TIMM106

General Description

This course introduces students to the basic principles of human physiology, focusing on the normal functions of cells, tissues, organs and different body systems.

The course focuses on physiological mechanisms responsible for maintaining internal homeostasis, and explains the functions of the circulatory, respiratory, digestive, excretory, endocrine and nervous systems. The course also pays special attention to physiological concepts related to nutrition and health sciences.

Course Objectives

- Understand the basic concepts and principles of human physiology. •
- Interpret physiological mechanisms responsible for maintaining internal homeostasis. •
- Describe the functions of major body systems. •
- Link physiological processes to different nutritional and health conditions. •
- Interpret physiological responses in normal and abnormal conditions. •
- Apply physiological knowledge in therapeutic nutrition practices. •

Assessment Methods

- Theoretical exams •
- Quizzes •
- Practical exams •
- Participation and class activities •
- Scientific reports •
- Final exam •

Course Details (Weekly Schedule)

Assessment Method	Teaching Method	Unit / Topic	Required Learning Outcomes	Hours	Week
Daily assessment	Lecture + practical activity	Introduction to physiology and homeostasis	CLO1	4 hrs	1
Quiz	Lecture + practical application	Cell structure and functions	CLO2	4 hrs	2
Daily assessment	Lecture + practical experiment	Mechanisms of transport across cell membranes	CLO2	4 hrs	3
Assignment	Lecture + lab activity	Blood physiology	CLO3	4 hrs	4
Quiz	Lecture + practical application	Cardiovascular system	CLO3	4 hrs	5
Daily assessment	Lecture + practical experiment	Cardiac cycle and blood pressure regulation	CLO4	4 hrs	6
Assignment	Lecture + lab	Respiratory system physiology	CLO3	4 hrs	7
Midterm exam	Lecture + practical application	Regulation of respiration and lung functions	CLO4	4 hrs	8
Quiz + assignment	Lecture + practical application	Digestive system physiology	CLO3	4 hrs	9
Daily assessment	Lecture + practical activity	Case study	CLO6	4 hrs	10
Daily assessment	Lecture + lab	Urine formation and composition	CLO3	4 hrs	11
Quiz	Lecture +	Fluids and electrolytes	CLO4	4 hrs	12

	practical application				
Written exam	Lecture + lab	Endocrine system	CLO3	4 hrs	13
Assignment	Lecture + practical activity	Nervous system	CLO3	4 hrs	14
Final assessment	Discussion + lab	Comprehensive review and practical applications	CLO1-CLO6	4 hrs	15

Sources

- 1. Human Physiology textbooks.
- 2. Lectures and study notes.
- 3. Laboratory guides and practical demonstrations.
- 4. Multimedia presentations and educational videos.
- 5. Scientific articles and e-learning resources.

