Tishk International University

Faculty of Applied Sciences

Nutrition and Dietetics Department

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Nutrition Assessment Laboratory

Pre-Lab Student Handout Booklet

Introduction

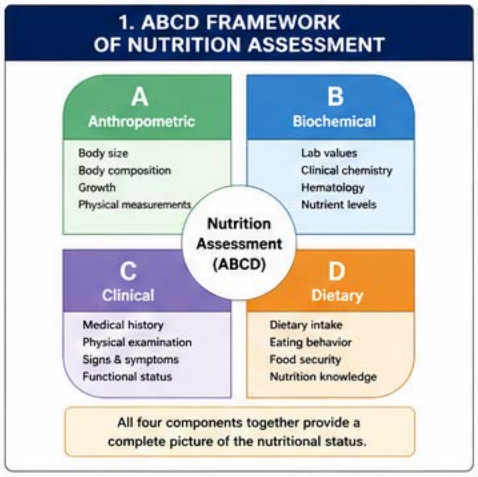
This booklet prepares students for weekly nutrition assessment laboratory sessions. Each module includes objectives, key concepts, preparation tasks, in-lab activities, expected outcomes, mini case studies, and performance checklists. Spaces for diagrams are indicated for print-ready formatting.

Module 1. Introduction to Nutrition Assessment Lab

Objective:
Understand the purpose, components, and importance of nutrition assessment.

Key Concepts:

- Definition of nutrition assessment
- Four components: Anthropometric, Biochemical, Clinical, Dietary (ABCD)
- Role in public health and clinical settings



Pre-Lab Reading/Preparation:

- Review basic nutrition concepts
- Familiarize with ABCD framework

Activities (Preview):

- Identifying assessment tools
- Case-based discussion

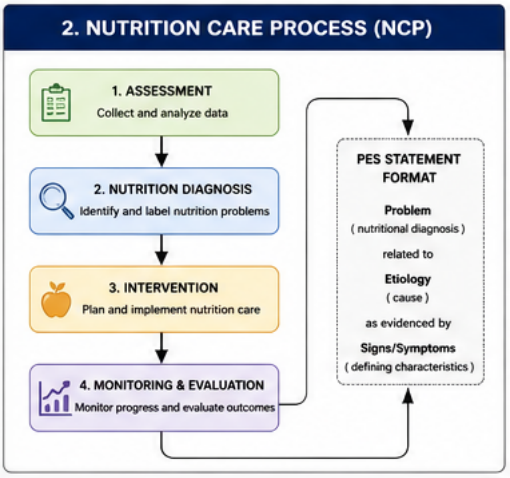
Expected Outcome:
Students will describe the ABCD components and their applications.

Module 2. The Nutrition Care Process (NCP) in Practice

Objective:
Understand and apply the steps of the Nutrition Care Process.

Key Concepts:

- Assessment → Diagnosis → Intervention → Monitoring & Evaluation
- PES statement (Problem, Etiology, Signs/Symptoms)



Pre-Lab Preparation:

- Review NCP framework
- Understand PES structure

Activities:

- Writing PES statements
- Applying NCP to case scenarios

Expected Outcome:
Students will construct basic PES statements and outline NCP steps.

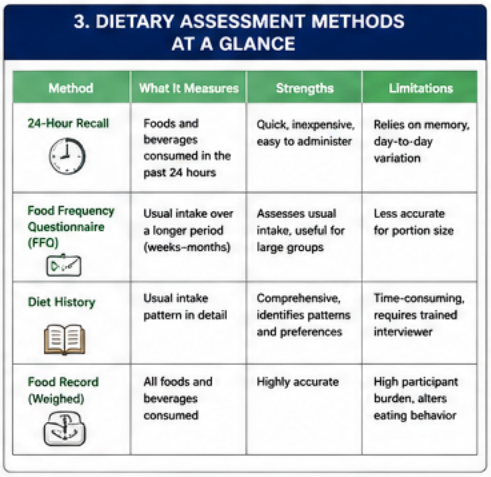
Module 3. Dietary Interview Techniques

Objective:
Develop skills for accurate dietary data collection.

Key Concepts:

- 24-hour recall
- Food frequency questionnaire (FFQ)
- Interview bias and probing techniques

Pre-Lab Preparation:



- Read about common dietary assessment tools

Activities:

- Role-play interviews
- Practice probing questions

Expected Outcome:
Students will conduct a structured dietary interview.

Module 4. Computerized Dietary Analysis

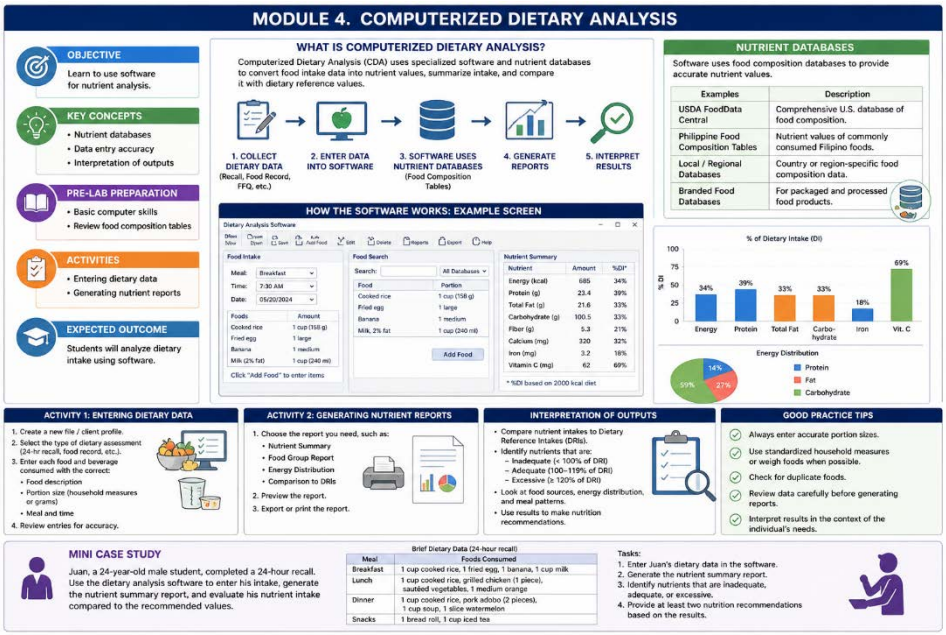
Objective:
Learn to use software for nutrient analysis.

Key Concepts:

- Nutrient databases
- Data entry accuracy
- Interpretation of outputs

Pre-Lab Preparation:

- Basic computer skills
- Review food composition tables



Activities:

- Entering dietary data
- Generating nutrient reports

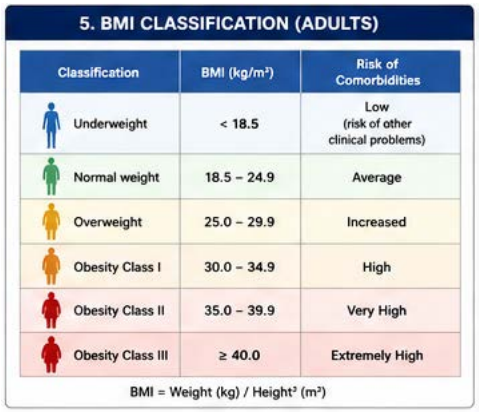
Expected Outcome:
Students will analyze dietary intake using software.

Module 5. Anthropometry: Basic Measurements

Objective:
Perform accurate anthropometric measurements.

Key Concepts:

- Weight, height, BMI
- MUAC, waist circumference
- Measurement errors



Pre-Lab Preparation:

- Review measurement techniques

Activities:

- Measuring weight and height
- Calculating BMI

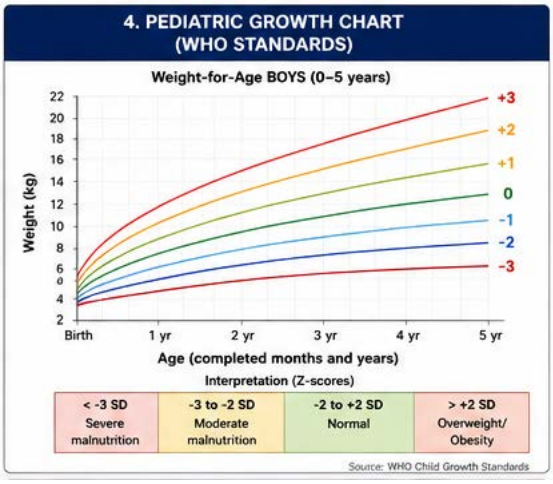
Expected Outcome:
Students will accurately measure and interpret basic anthropometry.

Module 6. Pediatric Growth Assessment

Objective:
Assess child growth using standard indicators.

Key Concepts:

- Growth charts
- Z-scores: WHZ, HAZ, WAZ
- Malnutrition classification



Pre-Lab Preparation:

- Review WHO growth standards

Activities:

- Plotting growth charts
- Interpreting Z-scores

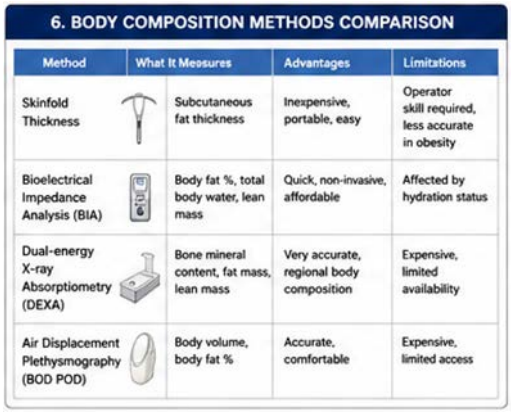
Expected Outcome:
Students will assess nutritional status in children.

Module 7. Advanced Body Composition

Objective:
Understand advanced methods of body composition analysis.

Key Concepts:

- Fat mass vs lean mass
- Methods: BIA, DEXA, skinfolds



6. BODY COMPOSITION METHODS COMPARISON

Method	What It Measures	Advantages	Limitations
Skinfold Thickness	Subcutaneous fat thickness	Inexpensive, portable, easy	Operator skill required, less accurate in obesity
Bioelectrical Impedance Analysis (BIA)	Body fat %, total body water, lean mass	Quick, non-invasive, affordable	Affected by hydration status
Dual-energy X-ray Absorptiometry (DEXA)	Bone mineral content, fat mass, lean mass	Very accurate, regional body composition	Expensive, limited availability
Air Displacement Plethysmography (BOD POD)	Body volume, body fat %	Accurate, comfortable	Expensive, limited access

Pre-Lab Preparation:

- Review body composition principles

Activities:

- Demonstration of tools
- Interpreting results

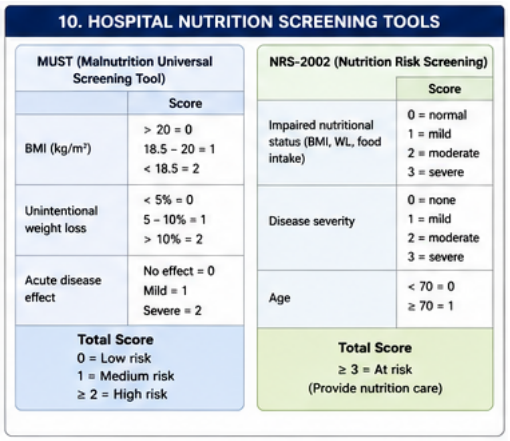
Expected Outcome:
Students will compare body composition methods.

Module 8. Assessment of the Hospitalized Patient

Objective:
Conduct nutrition assessment in clinical settings.

Key Concepts:

- Screening tools (e.g., MUST, NRS-2002)
- Clinical considerations



10. HOSPITAL NUTRITION SCREENING TOOLS

MUST (Malnutrition Universal Screening Tool)

	Score
BMI (kg/m²)	> 20 = 0 18.5 – 20 = 1 < 18.5 = 2
Unintentional weight loss	< 5% = 0 5 – 10% = 1 > 10% = 2
Acute disease effect	No effect = 0 Mild = 1 Severe = 2

Total Score
0 = Low risk
1 = Medium risk
≥ 2 = High risk

NRS-2002 (Nutrition Risk Screening)

	Score
Impaired nutritional status (BMI, WL, food intake)	0 = normal 1 = mild 2 = moderate 3 = severe
Disease severity	0 = none 1 = mild 2 = moderate 3 = severe
Age	< 70 = 0 ≥ 70 = 1

Total Score
≥ 3 = At risk
(Provide nutrition care)

Pre-Lab Preparation:

- Review hospital nutrition protocols

Activities:

- Case-based assessment
- Identifying nutrition risk

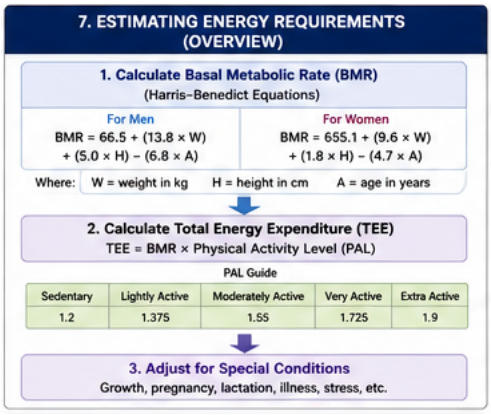
Expected Outcome:
Students will identify at-risk patients.

Module 9. Estimating Energy and Protein Requirements

Objective:
Calculate individual nutritional requirements.

Key Concepts:

- Basal metabolic rate (BMR)
- Total energy expenditure (TEE)
- Protein requirements



Pre-Lab Preparation:

- Review equations (e.g., Harris-Benedict)

Activities:

- Calculating energy needs
- Case scenarios

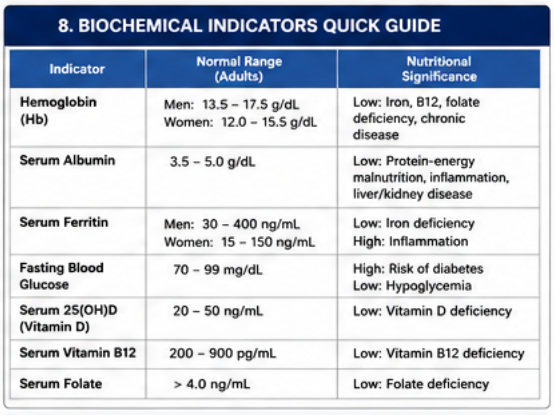
Expected Outcome:
Students will estimate energy and protein needs.

Module 10. Biochemical Indicators Interpretation

Objective:
Interpret laboratory data for nutrition assessment.

Key Concepts:

- Hemoglobin, albumin, glucose
- Lipid profile
- Limitations of biomarkers



Pre-Lab Preparation:

- Review normal lab ranges

Activities:

- Case interpretation
- Linking labs to nutrition status

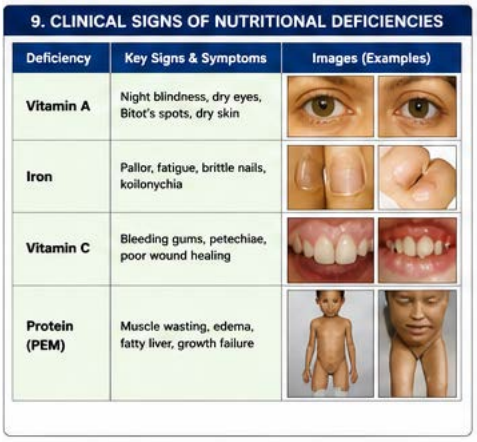
Expected Outcome:
Students will interpret key biochemical indicators.

Module 11. Clinical Physical Assessment

Objective:
Identify physical signs of nutritional deficiencies.

Key Concepts:

- Hair, skin, nails
- Muscle wasting
- Edema



Pre-Lab Preparation:

- Review deficiency signs

Activities:

- Visual assessment practice
- Case discussions

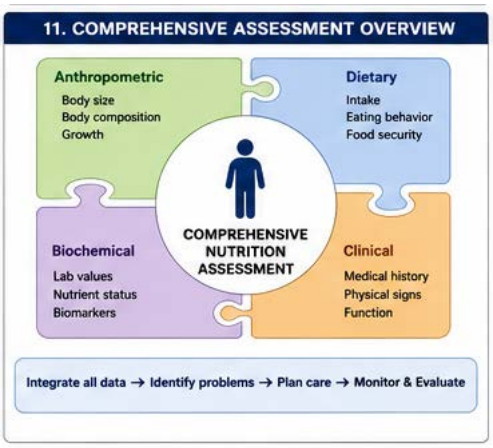
Expected Outcome:
Students will recognize clinical signs of malnutrition.

Module 12. Comprehensive Assessment & Chronic Disease Prevention

Objective:
Integrate all assessment methods for prevention.

Key Concepts:

- Holistic assessment
- Risk factor identification
- Lifestyle modification



Pre-Lab Preparation:

- Review all previous modules

Activities:

- Full case assessment
- Developing prevention plans

Expected Outcome:
Students will conduct comprehensive assessments and suggest interventions.