

BSHND 205: MICRONUTRIENTS IN HUMAN NUTRITION

Course Learning Outcomes:

- To understand the functional roles of vitamins and minerals in human nutrition with special reference to metabolism
- To familiarize with the deficiency symptoms and health disorders associated with improper intake of vitamins and minerals
- To analyze losses of micronutrients during food processing

Content-Theory:

1. Vitamins:

- Nomenclature,
- History,
- Development of the vitamins concept;

2. Fat and water soluble vitamins:

- Sources,
- Chemistry,
- Absorption,
- Transport and storage,
- Metabolism,
- Function,
- Deficiency,
- Bioassay,
- Interaction with other nutrients,
- Recommended daily allowances and toxicities;

3. Diagnosis:

- Treatments and prevention of vitamin deficiencies in human;
- Stability of vitamins under different storage conditions;
- Vitamin like compounds;
- Losses of vitamin during food processing;

4. Minerals:

- Types,
- History and developments of the minerals concept;
- Criteria of essentiality of minerals and their classification;
- Minerals distribution in human body;

5. Macro- and micro-minerals:

- Dietary sources,
- absorption,
- metabolism,
- metabolic function,

- Deficiency symptoms and disorders,
- recommended daily allowances,
- diagnosis,
- Treatments and prevention of mineral deficiencies in human;
- Water and electrolytes.

Teaching-Learning Strategies:

Teaching will be a combination of class lectures, class discussions, and group work. Short videos/films will be shown on occasion.

Assignments:

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

Assessments and Examination:

Sessional Work: 25 marks

Midterm Exam: 35 marks

Final Exam: 40 marks

Recommended Readings:

1. Allen, L. (2006). Guidelines on Food Fortification with Micronutrients. World Health Organization, Geneva, Switzerland.
2. Bender, D.A. (2009). Nutritional Biochemistry of Vitamins, (2nd ed.) Cambridge University Press, Cambridge, UK.
3. DiSilvestro, R.A. (2004). Handbook of Minerals as Nutritional Supplements. CRC Press, Taylor & Francis Group, Boca Raton, FL, USA.
4. Gropper, S.S. & Smith, J.K. (2012). Advanced Nutrition and Human Metabolism, (6th ed.) Wadsworth Cengage Learning, Belmont, CA, USA.

