



## Course Descriptor FSHNF381 & Food Analysis Lab

<b>ACADEMIC YEAR</b>	2020-21		
<b>Course Code &amp; Title</b>	FSHNF381 & Food Analysis Lab		
<b>Credit hours</b>	1	<b>Level of study</b>	DIPLOMA/BSc
<b>College / Centre</b>	CAHS		
<b>Co-requisites</b>	FSHNF311	<b>Pre-requisites</b>	NIL

### 1. COURSE OUTLINE

[The Laboratory course in Food Analysis includes: Basic principles of analytical chemistry & analysis of major and minor food components (Water, Carbohydrates (CHO), Fats & Lipids, Proteins, Vitamins, Minerals (micro and macro elements). It discusses basic principles of analytical chemistry by using different instrumentation techniques in food analysis. It includes: basic concepts of Food samples and sampling; introduction to spectrum, Beer-Lambert's Law, absorbance; basic principles of spectroscopy (UV-Vis & Atomic absorption and emission spectroscopy). This course is designed for students who will not only require training towards their diploma in Food Science & Human Nutrition (FSHN) but would continue their undergraduate degree program.]

### 2. AIMS

[This course is designed to provide students a clear understanding of basic principles behind various instruments that are commonly used in food industry and academic research labs with the following aims & objectives:

1. to explain basic components of food (water content, protein, lipids/fats, carbohydrates, vitamins, & minerals), their importance and their quantity in various food products.
2. to explain the principles and applications of analytical methods for food characteristics by using different instruments, i.e., pH meter, viscometer, spectroscopy, UV, etc.

to analyze and evaluate the to comprehend knowledge of basic food analysis techniques for the advanced food science courses.]

### 3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

<b>Learning Outcomes (Definitive)</b>	<b>Teaching and Learning methods (Indicative)</b>	<b>Assessment (Indicative)</b>
Upon successful completion of this course, students will be able to:		
1. To understand the basic principles of chemistry in food analysis, food composition, chemical & physical changes that take place during its transportation, storage, processing and manufacturing.	Lab. lectures, Power point presentations, videos in food analysis procedures through AOAC methods.	Experiment & Lab manual/ Quiz/mid-term test/ Final exam
2. To Understand the concept of proximate analysis of CHO, proteins, lipids, water, ash and acid	Lab lecture, Laboratory experiments	Experiment & Lab manual/ Quiz/mid-term test/ Final exam



## Course Descriptor FSHNF381 & Food Analysis Lab

in foods by using titration, oven drying techniques;		
3. To understand the concept of sample weighing, preparation, and its handling, sample preparation methods for different procedures.	Lab lecture, Laboratory experiments	Experiment & Lab manual/ Quiz/mid-term test/ Final exam
4. To understand basic concepts of physical and chemical properties of foods and to understand the importance of water in foods, free and bound water, water activity and acid-base concepts.	Lab lecture, Laboratory experiments	Experiment & Lab manual/ Quiz/mid-term test/ Final exam
5. To gain hands-on experience on advance instrumentation, i.e., Brookefield Viscosity meter, Water activity meter, Kjehldahl protein analysis, soxhlet extraction procedures,	Lab lecture, Laboratory experiments	Experiment & Lab manual/ Quiz/mid-term test/ Final exam

### 4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Midterm Exam	30%
Lab manual	20%
Quiz	10%
Final Examination	40%
<b>TOTAL</b>	<b>100%</b>

### 5. ACHIEVING A PASS

Students will achieve **1** credit hours for this course by passing **ALL** of the course assessments and achieving a **minimum overall score of 50%**

***NB \*Ensure that ALL learning outcomes are taken into account***

### 6. COURSE CONTENT (Indicative)

LECTURE TOPIC	TIME (HOURS)
1. Introduction to the course: aims of the course, exam, etc.),	3
2. Introduction to Food Analysis Laboratory, Lab Safety	3



**Course Descriptor**  
**FSHNF381 & Food Analysis Lab**

3. Determining the Percent of Acetic Acid in Vinegar	3
4. Preparation of Standard Curve using UV-Visible Spectrophotometry	3
5. Determining Water Content of Food Samples	3
6. Quiz and Tutorials	3
7. Determining Water Activity of Food Samples	3
8. Midterm Exam	3
9. Determining Total Ash Content	3
10. Mineral Content Analysis using Standard Curve Method	3
11. Determination of crude protein content by Kjeldahl Method	3
12. Viscosity measurement using Brookfield Viscometer	3
13. Tutorials	3
14. Revision	3
15. Final Exam	3
<b>TOTAL HOURS</b>	<b>45</b>
Plus <b>RECOMMENDED INDEPENDENT STUDY HOURS</b>	
<b>TOTAL COURSE HOURS</b>	<b>60</b>

**7. RECOMMENDED READING**

**Core text/s:**

**Textbook & Laboratory Manual:**

- *Introduction to Food Analysis Laboratory* by Suzane Nielsen. 2010. 4<sup>th</sup> Edition. An Aspen publication, Gaithersburg, Maryland. (The instructor will provide copies of the material)
- Lab. Notebook & experimental material will be provided by the Instructor.

More Experiments will be added upon availability of Instrumentation

**Library + online resources:**