

| | | | | | | |
|--|-------------------------|---------------|--|--|------|---|
| MODUL | FOOD | COURSE TITLE | Food chemistry | | ECTS | 5 |
| FACULTY COORDINATOR: | prof.dr hab. Z Krejpcio | | DEPARTMENT | Department of Food Technology of Plant Origin | | |
| TEACHER | | | Prof. dr hab. Małgorzata Majcher | | | |
| VOLUME (H) | | 30 | | PERSONAL WORK (H) | 60 | |
| LECTURE (H) | LAB (H) | PLACEMENT (H) | PROJECT (H) | OTHER MODALITIES (H) | | |
| 12 | 18 | 2 | 15 | 13 | | |
| EVALUATION | | | TEACHING METHODS | | | |
| EVALUATION MODALITIES | | | Lecture with multimedia presentation | | | |
| ORAL INDIVIDUAL REPORT | | | x | laboratory exercises using equipment and apparatus | | |
| WRITTEN INDIVIDUAL REPORT | | | x | Focused discussion | | |
| FINAL ORAL EXAM | | | | Case studies | | |
| FINAL WRITTEN EXAM | | | | | | |
| COMMENTS OF EVALUATION | | | | | | |
| Evaluation is conducted in the form of a oral presentation with open questions and written reports from lab classes. | | | | | | |
| SEMESTER (WINTER/SUMMER) | | | LANGUAGE | | | |
| SUMMER | | | ENGLISH | | | |
| OBJECTIVES | | | | | | |
| The primary objectives of this course are to ensure that students can analyze the chemical structures of major and minor food components and how they dictate physical properties while predicting how processing methods like heating, freezing, and pH changes affect the nutritional value and sensory quality of food. Students will also evaluate the role of water activity in food stability and microbial growth, apply laboratory techniques to identify and quantify food additives, proteins, and pigments, and develop a comprehensive understanding of the biochemical pathways of enzyme action and flavor development across various food matrices. | | | | | | |
| CONTENTS | | | | | | |
| Lectures | | | | | | |
| 1. Introduction to Food Chemistry | | | | | | |
| 2. Water in Food | | | | | | |
| 3. Carbohydrates in Food | | | | | | |
| 4. Lipids in Food | | | | | | |
| 5. Proteins and Enzymes in Food | | | | | | |
| 6. Food Additives and Contaminants | | | | | | |
| 7. Food Color and Pigments | | | | | | |
| 8. Flavor Chemistry | | | | | | |
| Lab classes: 1. natural food colorants 2. properties of proteins 3. amino acids 4. preservatives and sweeteners | | | | | | |
| Recommended Literature: | | | | | | |
| "Fennema's Food Chemistry" (Damodaran & Parkin), "Food Chemistry" (H.-D. Belitz, W. Grosch, & P. Schieberle): | | | | | | |
| PRE-REQUISITES | | | Students should possess a fundamental understanding of general and organic chemistry principles, including molecular bonding, functional groups, and basic chemical reactions, to effectively analyze the complex transformations occurring in food systems. | | | |