

Hello and welcome to
Food Biochemistry
Class!





CHEMISTRY DEPARTEMENT
FST UIN SUNAN GUNUNG DJATI BANDUNG

Kontrak Perkuliahan Semester Genap 2023/2024



Assyifa Junitasari

Course Identity

Code :
KI216D03

Credits :
2 SKS

Course
Schedule :
**Thursday,
08.40-10.20**

Prerequisite
Course :
Biochemistry


Course Description

This course discusses the need for food, water in foodstuffs, biomolecules in nutrition, food microbiology, food additives, food processing and preservation, functional foods, and special topics.



Topics

- Principles and analyses
 - Muscle foods (meats, poultry, and fish)
 - Milk and dairy
 - Fruits, vegetables, and cereals
 - Health and functional foods
 - Food processing
 - Food safety and food allergens
- 



Instructional Media

E-Knows/ G-Drive
<https://lms.uinsgd.ac.id/>

Video Conferences
Zoom Meeting/Google Classroom

Communication via
WhatsApp Grup


Grading

Assignment :
30%

Skill :
10%

UTS :
30%

UAS :
30%



Learning Method

Project Group Review

Group Presentation

Group discussion



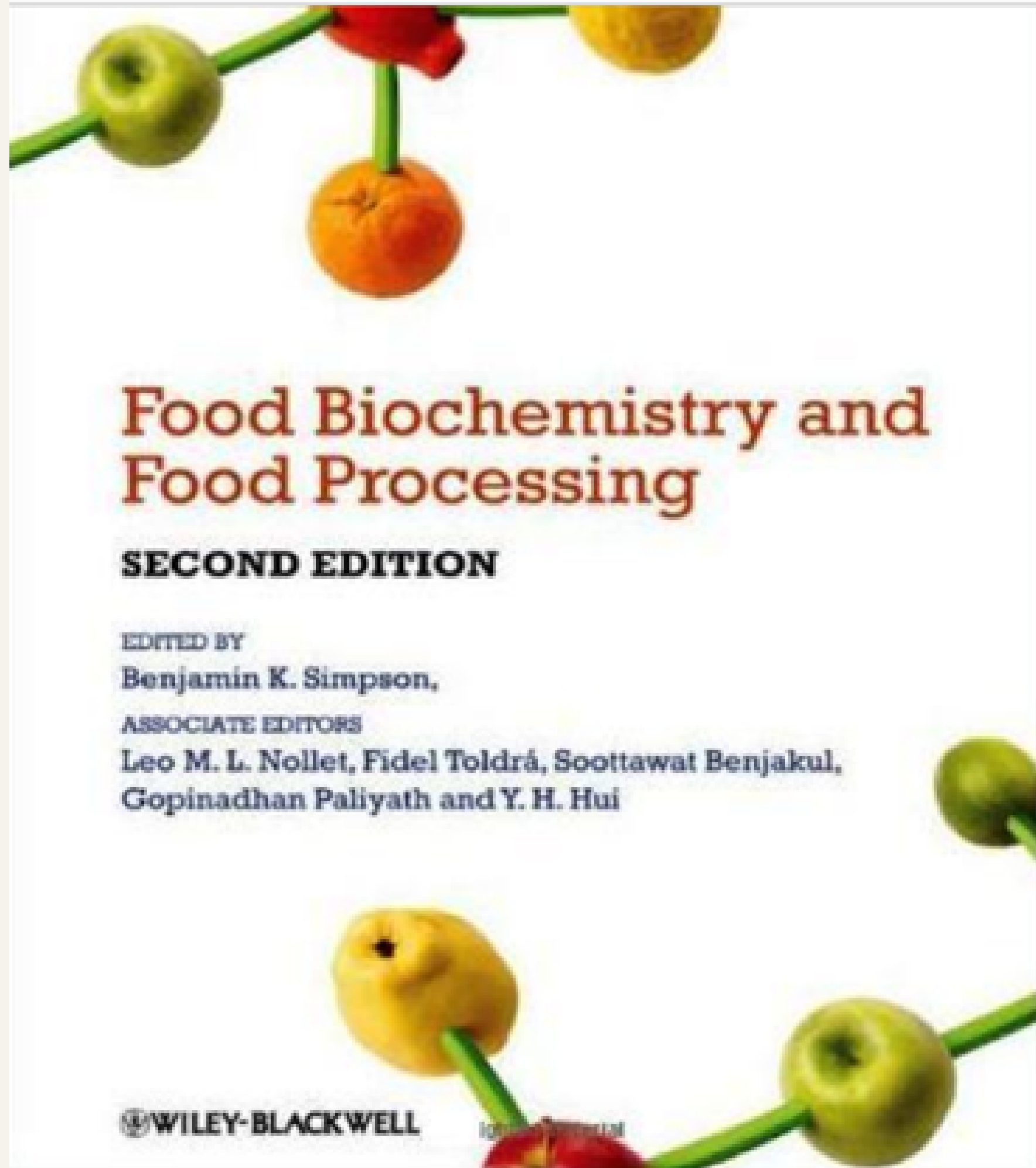
Resources



**Benjamin K.Simpson et al., 2012,
Food Biochemistry and Foos
Processing, Willey-Blackwell, USA**

Frazier, W.C, and Westhoff, D.C., 1998,
Food Microbiology, McGraw Hill Book
Co., Singapore.

Prawirokusuma, S., 1991, Biokimia
Nutrisi, edisi satu, BPFE, Yogyakarta.



Food Biochemistry and Food Processing

SECOND EDITION

EDITED BY

Benjamin K. Simpson,

ASSOCIATE EDITORS

**Leo M. L. Nollet, Fidel Toldrá, Soottawat Benjakul,
Gopinadhan Paliyath and Y. H. Hui**

© WILEY-BLACKWELL

1000-0000

Part 1: Principles/Food Analysis

1. An Introduction to Food Biochemistry 3
Rickey Y. Yada, Brian Bryksa, and Wai-kit Nip
2. Analytical Techniques in Food Biochemistry 26
Massimo Marcone
3. Enzymes in Food Analysis 39
Isaac N. A. Ashie
4. Browning Reactions 56
Marta Corzo-Martínez, Nieves Corzo, Mar Villamiel, and M Dolores del Castillo
5. Water Chemistry and Biochemistry 84
C. Chieh

Part 2: Biotechnology and Ezymology

6. Enzyme Classification and Nomenclature 109
H. Ako and W. K. Nip
7. Biocatalysis, Enzyme Engineering and Biotechnology 125
G. A. Kotzia, D. Platis, I. A. Axarli, E. G. Chronopoulou, C. Karamitros, and N. E. Labrou
8. Enzyme Activities 167
D. J. H. Shyu, J. T. C. Tzen, and C. L. Jeang
9. Enzymes in Food Processing 181
Benjamin K. Simpson, Xin Rui, and Sappasith Klomklao
10. Protein Cross-linking in Food – Structure, Applications, Implications for Health and Food Safety 207
Juliet A. Gerrard and Justine R. Cottam
11. Chymosin in Cheese Making 223
V. V. Mistry
12. Pectic Enzymes in Tomatoes 232
Mary S. Kalamaki, Nikolaos G. Stoforos, and Petros S. Taoukis
13. Seafood Enzymes 247
M. K. Nielsen and H. H. Nielsen

Sappasith Klomklao, Sootawat Benjakul, and Benjamin K. Simpson

Part 3: Meat, Poultry and Seafoods

15. Biochemistry of Raw Meat and Poultry 287
Fidel Toldrá and Milagro Reig
16. Biochemistry of Processing Meat and Poultry 303
Fidel Toldrá
17. Chemical and Biochemical Aspects of Color in Muscle-Based Foods 317
José Angel Pérez-Alvarez and Juana Fernández-López
18. Biochemistry of Fermented Meat 331
Fidel Toldrá
19. Biochemistry of Seafood Processing 344
Y. H. Hui, N. Cross, H. G. Kristinsson, M. H. Lim, W. K. Nip, L. F. Siow, and P. S. Stanfield
20. Fish Collagen 365
Sootawat Benjakul, Sitthipong Nalinanon, and Fereidoon Shahidi
21. Fish Gelatin 388
Sootawat Benjakul, Phanat Kittiphattanabawon, and Joe M. Regenstein
22. Application of Proteomics to Fish Processing and Quality 406
Hólmfríður Sveinsdóttir, Samuel A. M. Martin, and Oddur T. Vilhelmsson

Part 4: Milk

23. Dairy Products 427
Terri D. Boylston
24. Chemistry and Biochemistry of Milk Constituents 442
P.F. Fox and A.L. Kelly
25. Biochemistry of Milk Processing 465
A.L. Kelly and P.F. Fox
26. Equid Milk: Chemistry, Biochemistry and Processing 491
T. Uniacke-Lowe and P.F. Fox

Part 5: Fruits, Vegetables, and Cereals

27. Biochemistry of Fruits 533
Gopinadhan Paliyath, Krishnaraj Tiwari, Carole Sitbon, and Bruce D. Whitaker
28. Biochemistry of Fruit Processing 554
Moustapha Oke, Jissy K. Jacob, and Gopinadhan Paliyath
29. Biochemistry of Vegetable Processing 569
Moustapha Oke, Jissy K. Jacob, and Gopinadhan Paliyath
30. Non-Enzymatic Browning in Cookies, Crackers and Breakfast Cereals 584
A.C. Soria and M. Villamiel
31. Bakery and Cereal Products 594
J. A. Narvhus and T. Sørhaug
32. Starch Synthesis in the Potato Tuber 613
P. Geigenberger and A.R. Fernie
33. Biochemistry of Beer Fermentation 627
Ronnie Willaert
34. Rye Constituents and Their Impact on Rye Processing 654
T. Verwimp, C. M. Courtin, and J. A. Delcour

Part 6: Health/Functional Foods

35. Biochemistry and Probiotics 675
Claude P. Champagne and Fatemeh Zare
36. Biological Activities and Production of Marine-Derived Peptides 686
Wonnop Vissessangua and Soottawat Benjakul
37. Natural Food Pigments 704
Benjamin K. Simpson, Soottawat Benjakul, and Sappasith Klomklao

Part 7: Food Processing

38. Thermal Processing Principles 725
Yetenayet Bekele Tola and Hosahalli S. Ramaswamy
39. Minimally Processed Foods 746
Michael O. Ngadi, Sammy S.S. Bajwa, and Joseph Alakali
40. Separation Technology in Food Processing 764
John Shi, Sophia Jun Xue, Xingqian Ye, Yueming Jiang, Ying Ma, Yanjun Li, and Xianzhe Zheng

Part 8: Food Safety and Food Allergens

41. Microbial Safety of Food and Food Products 787
J. A. Odumeru
42. Food Allergens 798
J. I. Boye, A. O. Danquah, Cin Lam Thang, and X. Zhao
43. Biogenic Amines in Foods 820
Angelina O. Danquah, Soottawat Benjakul, and Benjamin K. Simpson
44. Emerging Bacterial Food-Borne Pathogens and Methods of Detection 833
Catherine M. Logue and Lisa K. Nolan
45. Biosensors for Sensitive Detection of Agricultural Contaminants, Pathogens and Food-Borne Toxins 858
Barry Byrne, Edwina Stack, and Richard O'Kennedy

Glossary of Compound Schemes 877

Index 881



Week-1

Class Syllabus of Food
Biochemistry



Week 2

- Sub Topics :
Principles/Food Analysis



Week-3

- Sub Topics : Meat, Poultry and Seafoods



Week-4

- Sub Topics : Meat, Poultry and Seafoods
- Group Presentation :
Group 1



Week-5

- Sub Topics : Milk



Week-6

- Sub Topics : Milk
- Group Presentation :
Group 2

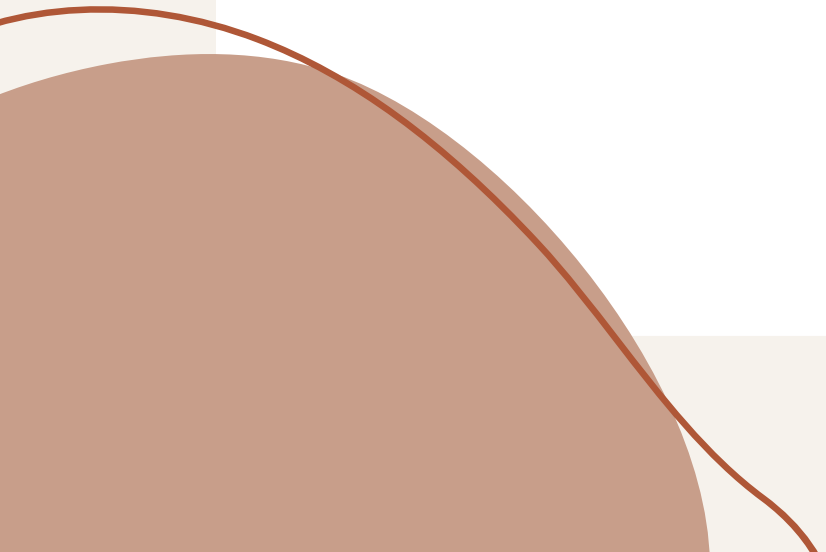


Week-7

UTS



Week-8

- Sub Topics : Fruits, Vegetables, and Cereals
- 



Week-9

- Sub Topics : Fruits, Vegetables, and Cereals
- Group Presentation :
Group 3

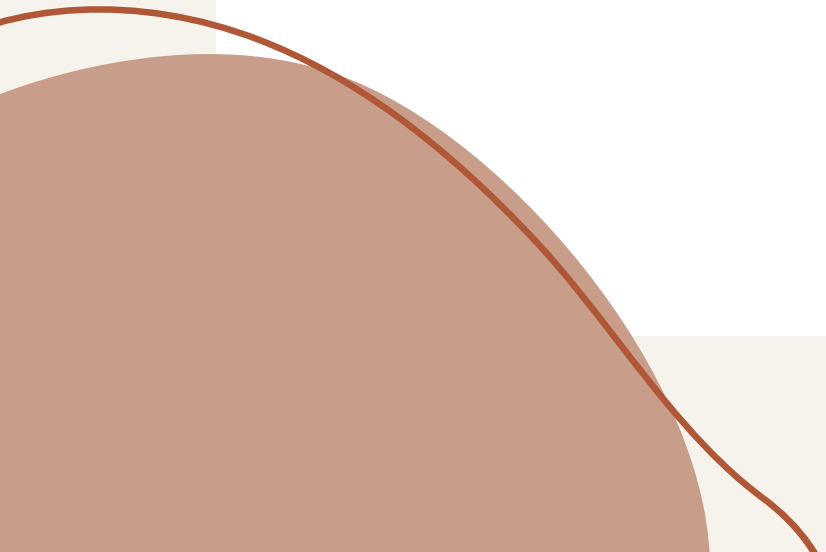


Week-10

- Sub Topics :
Health/Functional Foods



Week-11

- Sub Topics :
Health/Functional Foods
 - Group Presentation :
Group 4
- 

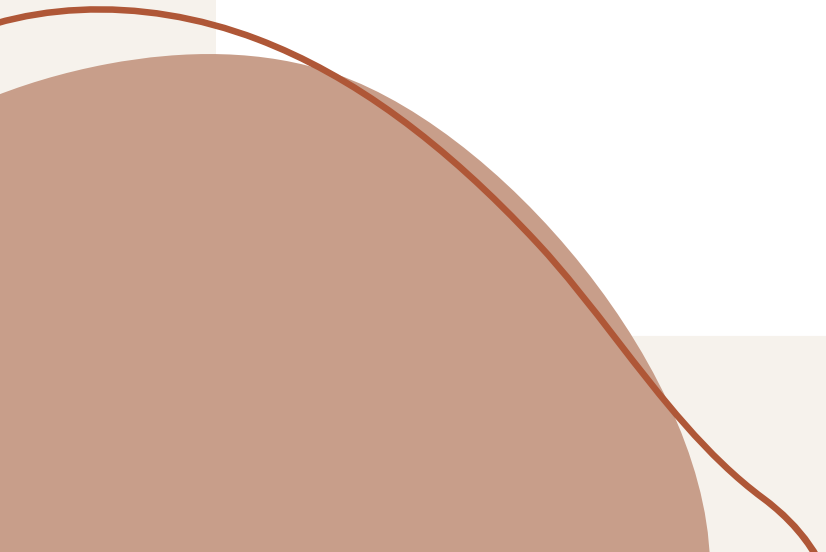


Week-12

- Sub Topics : Food Processing



Week-13

- Sub Topics : Food Processing
 - Group Presentation :
Group 5
- 

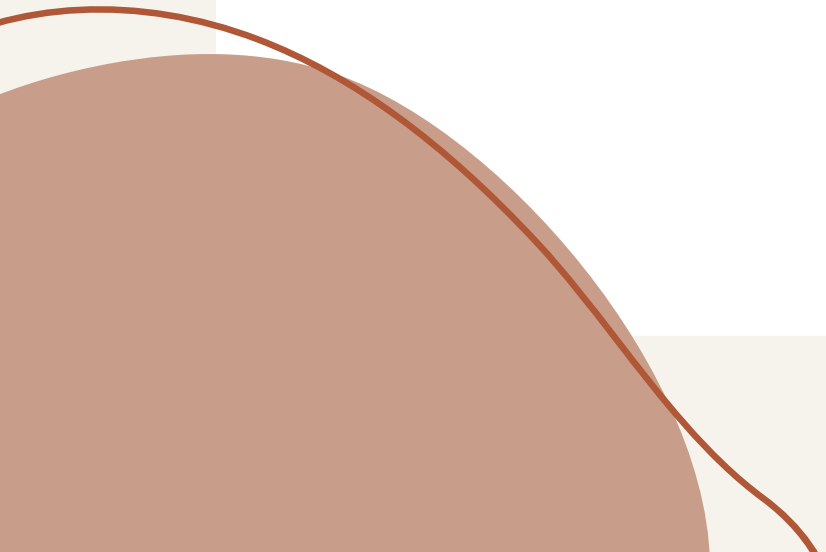


Week-14

- Sub Topics : Food Safety and Food Allergens



Week-15

- Sub Topics : Food Safety and Food Allergens
 - Group Presentation :
Group 6
- 



Week-16

UAS



Project Group Presentation

- Membuat tim sebanyak 3-4 orang
- Mencari 3 Jurnal Ilmiah terkait riset yang berhubungan dengan materi (1 Jurnal Internasional utama, 2 Jurnal Nasional pendukung) dengan tema sama
- Membuat resume
- Presentasi hasil resume : Latar Belakang, Metode Analisis, Pembahasan, Kesimpulan



Project UTS

Review of Book : Benjamin K.Simpson et al., 2012, Food Biochemistry and Food Processing, Willey-Blackwell, USA Part 2 (Biotechnology and Enzymology)



Project UAS

- Membuat Proposal Research Topic Food Biochemistry
- Didukung Oleh 5 Jurnal Ilmiah (2 Jurnal Internasional dan 3 Jurnal Nasional)
- Format Proposal Maksimal 3 halaman : **Title of Research, Background Research, Research Question, Analysis of the Problem, Research Method, Preliminary Answer to The Research Question, Academic Contribution of the Study, Literature Review**



Thank You!

Good Luck Everyone!

Do you have any questions ?

