School of Environmental and Life Sciences

FSHN2050: Plant Food Products

Ourimbah

Semester 2 - 2023

COURSE OUTLINE

OVERVIEW

Course Description

Commodities of Plant origin constitute the staple diet for people worldwide, providing essential nutrients - such as proteins, carbohydrates and fibre - through fresh, minimally processed and fully processed products. The structure, composition, properties, uses, processing and technology of cereal grains, with emphasis on wheat, will be studied. The post-harvest technologies of horticultural produce is studied in relation to their biochemistry, physiology, composition and response to changes in the physical environment. Properties and methods of processing of other food plant materials such legumes, nuts, coffee, teas and herbs will also be addressed. By completing this course, students will appreciate the properties of plant-based foods and explain methods for processing plant food materials.

Assumed Knowledge

To facilitate success in this course, students are expected to have successfully completed FSHN1010, CHEM1110, CHEM1120.

Contact Hours

Ourimbah
Laboratory *
Face to Face On Campus
3 hour(s) per Week for Full Term

Lecture
Face to Face On Campus
2 hour(s) per Week for Full Term

* This contact type has a compulsory requirement.

Unit Weighting

10

Workload

Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

CONTACTS

Course Coordinator

Ourimbah
Dr Penta Pristijono
Penta.Pristijono@newcastle.edu.au
(02) 43494783
Consultation: By appointment

Teaching Staff

Other teaching staff will be advised on the course Canvas site.

School Office

School of Environmental and Life Sciences
SO-104 Science Offices
OURIMBAH
Science-SELS@newcastle.edu.au
(02) 4349 4568 / (02) 4348 4115
9am-5pm (Mon-Fri)

SYLLABUS

Course Content

The following topics will be studied in this course:

1. Grain structure, composition of cereal grains and grain storage.
2. Processing of grains and uses of cereal products.
3. Structure, composition, processing and uses of legumes, coffee and teas.
4. Structure, composition, physiology and biochemistry of fruit and vegetables.
5. Effect of environmental conditions and causes of post-harvest losses.
6. Processing of fruit and vegetables.

Course Learning Outcomes

On successful completion of this course, students will be able to:

1. Identify the structure, composition and uses of cereal, oilseed, horticultural produce and leguminous foods.
2. Explain the effect of different storage conditions on horticultural produce in relation to structure, composition, biochemistry and physiology.
3. Identify the various methods of processing that can be used for plant food materials.
4. Collect and interpret the data and results of experiments on the effect of processing conditions on quality parameters of plant food products.
5. Identify and explain the product composition, product quality, production process of commercially available selected plant food products.

Course Materials

Recommended Reading:

- Rosentrater, K. A. and Evers, A. D. 2018. Kent's Technology of Cereals: An Introduction for Students of Food Science and Agriculture (5th ed). E-book (Available in KNovel).

- Hoseney, R.C. 2010. Principles of Cereal Science and Technology, 3rd edition, AACC Inc., St Paul, MN, USA.

- Jongen, W. 2002. Fruit and Vegetable Processing - Improving Quality. CRC Woodhead Publishing Ltd. Cambridge, UK. E-book (Available in KNovel).

- Wills, R., McGlasson, B., Graham, D. and Joyce, D. 2007. Postharvest: an introduction to the physiology and handling of fruit, vegetables, and ornamentals. 5th edition. University of New South Wales, UNSW Press, Sydney.

- Matthews, R.H. 1998. Legumes chemistry, technology, and human nutrition. Marcel Dekker.

- Johnson, L. A., White, P. J., and Galloway, R. (2015). Soybeans: Chemistry, Production Processing, and Utilization. AOCS Press. E-book (Available in KNovel).

- Coultate, T. (2016). Food: the chemistry of its components. The Royal Society of C Chemistry. E-book (Available in KNovel).

- Siddiqui, M.W., Zavala, J.F.A., and Hwang, C.A., (2016). Postharvest Management Approaches for Maintaining Quality of Fresh Produce: Springer. . E-book (Available in KNovel).

COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:
Contact Hour Requirements:

- Laboratory There is a compulsory attendance requirement in this course. Students must participate in minimum of 80% of scheduled laboratory sessions.
- Laboratory Induction Requirement - Students must attend and pass the induction requirements before attending these sessions. In order to participate in this course, students must complete a compulsory safety induction.

Course Assessment Requirements:

- Assessment 1 - Tutorial / Laboratory Exercises: Pass Requirement - Students must pass this assessment item to pass the course. Students must participate in and submit reports for a minimum of 80% of scheduled laboratory sessions and obtain a passing grade of at least 50%

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	17 Jul	Introduction to Course Safety Course Outline	Lecture 1 - Introduction to the Course Lab Safety induction	
2	24 Jul	Cereals	Lecture 2 - Grains structure and composition Lab 1 - Gluten formation and grain analysis	
3	31 Jul	Cereals	Lecture 3 Proteins and Starches Lab 2 - Bread Making	
4	7 Aug	Cereal Processing	Lecture 4 - Cereal Processing 1 Lab 3 - Starch gels	
5	14 Aug	Cereal Processing	Lecture 5 - Cereal Processing 2 Lab 3 - Starch gels - continuous Lab 4 - Fats Lab 6 - 7 Ripening starts	Lab Report 1 - Bread Making, 5pm Thursday 17 August.
6	21 Aug	Fruits and Vegetables	Lecture 6 - Fruit & Vegetables 1 Lab 5 - Moisture Loss - starts Lab 6 - 7 Ripening continues	
7	28 Aug	Fruits and Vegetables	Lecture 7 - Fruit & Vegetables 2 Lab 5 - Moisture Loss continues. Lab 6-7 Ripening continues	Investigative Report, report, 5pm Tuesday 29 August.
8	4 Sep	Fruits and Vegetables	Lecture 8 - Fruit & Vegetables 3 Lab 6-7 - Ripening continues (this lab session will possibly be replaced with NSW DPI visits and the exact schedule will be confirmed closer to the date on Canvas)	
9	11 Sep	Fruits and Vegetables	Lecture 9 - Fruit & Vegetables 4 Lab 8 - Pigments	Lab Report 2 - Moisture loss, 5pm Thursday 14 September
10	18 Sep	Legumes	Lecture 10 - Legumes/Oils Lab 9 - soymilk and tofu	Electronic Presentations File, Tuesday 19 September.
Mid Term Break				

Mid Term Break				
11	9 Oct	Tea/Coffee/Herbs	Lecture 11 - Tea, Coffee and Herbs Lab 10 - Peanut Butter	Lab Report 3 - Pigments, 5pm Thursday 12 October.
12	16 Oct	Group Presentations 1	No Lab	Lecture Time
13	23 Oct	Group Presentations 2 Revision Week	Lecture 12 - Revision No Lab	Lecture Time
Examination Period				
Examination Period				

ASSESSMENTS

This course has 4 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Laboratory reports*	Lab Report 1 - Bread making, 5pm Thursday 17 August Lab Report 2 - Moisture loss, 5pm Thursday 14 September Lab Report 3 - Pigments, 5pm Thursday 12 October	Individual	45%	3, 4
2	Individual investigative report	Week 7. Due 5pm Tuesday 29 August.	Individual	15%	5
3	Presentation Group	Presentation files week 10. Due 5pm Tuesday 19 September.	Group	10%	2, 5
4	Formal Examination	Formal Exam Period	Individual	30%	1, 2, 3

* This assessment has a compulsory requirement.

Late Submissions The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Laboratory reports

Assessment Type Tutorial / Laboratory Exercises

Purpose To produce articulate and concise documents which convey evidence-based understanding of the concepts and topics.

Description Students will participate in different experiments and write 3 lab reports.
Laboratory reports - Individual reports to be completed per instructions and format guidelines provided on Canvas.

Weighting 45%

Compulsory Requirements Pass Requirement - Students must pass this assessment item to pass the course.

Due Date Lab Report 1 - Bread making, 5pm Thursday 17 August
Lab Report 2 - Moisture loss, 5pm Thursday 14 September
Lab Report 3 - Pigments, 5pm Thursday 12 October

Submission Method Online

Assessment Criteria Students will be assessed on format style and quality of their reports. Details of criteria will be uploaded on Canvas prior first report submission.

Return Method Online

Feedback Provided Returned Work - Three weeks after submission. Each student will be given feedback in the report.
The assessment will be returned online, usually via Canvas

Opportunity to Reattempt Students WILL be given the opportunity to reattempt this assessment.
Students with valid adverse circumstance will be given the opportunity to re-attempt.

Assessment 2 - Individual investigative report

Assessment Type	Report
Purpose	The purpose of the Individual report is to provide the student with the opportunity to develop literature research skills and written communication skills.
Description	Investigation Report, Individual - Students will be advised of available and allocated topics on Canvas. Reports to be completed per instructions and format guidelines provided on Canvas.
Weighting	15%
Due Date	Week 7. Due 5pm Tuesesday 29 August.
Submission Method	Online
Assessment Criteria	Students will be assessed on format style and quality of their reports. Details of assessment criteria will be uploaded on Canvas prior report submission.
Return Method	Online
Feedback Provided	Returned Work - Three weeks after submission. Each student will be given feedback in the report. The assessment will be returned online, usually via Canvas. Students WILL NOT be given the opportunity to reattempt this assessment.

Assessment 3 - Presentation Group

Assessment Type	Presentation
Purpose	The purpose of the group activity is to enable peer-to-peer learning; develop oral communication skills and the ability to record data, synthesise an opinion and convey this clearly in a well presented and articulate manner.
Description	Group Presentations - students will be advised of available and allocated topics on Canvas. The presentation should last 10-15 minutes, allowing 5 minutes for questions by the Course Coordinator and other attending students.
Weighting	10%
Due Date	Presentation files week 10. Due 5pm Tuesday 19 September.
Submission Method	Online Electronic copy of presentation file (MS-PowerPoint) send via e-mail. Presentations will be held in class. Each group has to submit an electronic copy of the presentation slides, evidence (a table or spreadsheet) of groups' discussion identifying dates and items discussed in week 10.
Assessment Criteria	Details of criteria will be uploaded on Canvas prior presentation day.
Return Method	Not Returned
Feedback Provided	In Class - At the end of the presentation. Each group will be given feedback at the end of the presentation session Students WILL NOT be given the opportunity to reattempt this assessment.

Assessment 4 - Formal Examination

Assessment Type	Formal Examination
Purpose	The final formal examination is designed to test the individual student's knowledge of the course material and their ability to describe, analyse and hypothesise from this material. Marks are awarded in accordance with Table 1 from the Workload Assessment Marking and Grading Policy (Policy 000649) at http://www.newcastle.edu.au/policy/000649.html
Description	Any of multiple choice, short answer, calculations, or essay questions may be included.
Weighting	30%
Due Date	Formal Exam Period
Submission Method	Formal Exam
Assessment Criteria	The complete course content (laboratory, presentations, and lecture material) is subject to the final examination.
Return Method	Not Returned
Feedback Provided	No Feedback

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Attendance

Attendance/participation will be recorded in the following components:

- Laboratory (Method of recording: Students signature in each lab session)

Communication Methods

Communication methods used in this course include:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.
- Email: Students will receive communications via their student email account.
- Face to Face: Communication will be provided via face-to-face meetings or supervision.

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.

Oral Interviews (Vivas)

As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the Oral Examination (viva) Procedure. In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the Student Conduct Rule.

Academic Misconduct

All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35.

Adverse

The University acknowledges the right of students to seek consideration for the impact of

Circumstances

Allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:

1. the assessment item is a major assessment item; or
2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;
3. you are requesting a change of placement; or
4. the course has a compulsory attendance requirement.

Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at:
https://policies.newcastle.edu.au/document/view-current.php?id=236

Important Policy Information

The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at https://www.newcastle.edu.au/current-students/no-room-for/policies-and-procedures
that support a safe and respectful environment at the University.

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.