UM | Faculty of Agricultural and Food Sciences

Syllabus

FOOD 4160: Food Analysis I

(Fall 2020)

Department of Food and Human Nutritional Sciences

University of Manitoba

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COURSE DETAILS

Course Title & Number:	FOOD 4160 Food Analysis I
Number of Credit Hours:	3
Class Times & Days of Week:	Tuesday, Thursday: 8.30 am – 9.45 am Lab Section B01: Wednesday 2.30 pm-5.25 pm Lab Section B02: Thursday 2.30 pm-5.25 pm
Location for classes/labs/tutorials:	Virtual
Pre-Requisites:	FOOD 2500: Food Chemistry

Instructor Contact Information

Instructor(s) Name & Preferred Form of Address:	Dr. Chamila Nimalaratne Instructor will respond to any civil form of address such as first name, last name or Dr. etc
Office Location:	Virtual
Office Hours or Availability:	Tuesday, Thursday 10.00 am – 11.00 am, Other times by appointment
Office Phone No.	780-966-1320
Email:	Chamila.Nimalaratne@umanitoba.ca (preferred method of communication) All emails should contain FOOD 4160 at the start of the subject line, followed by student's given name, family name.
Contact:	Email is the preferred method of communication. All emails will be answered within 24 hours. For urgent reasons, you can contact by emails.

Course Description

U of M Course Calendar Description

This course exposes students to the principles, methods, and techniques of qualitative and quantitative physical, chemical and biological analyses of foods. Major emphasis is placed on understanding the basic principles of classical and instrumental methods of analysis. Criteria for the choice of various analytical methods, methods for treating data and sampling techniques will be studied.

General Course Description

This course will provide the fundamental knowledge and hands-on experience on basic food analytical methods used to analyze basic components in different food matrixes. This course will provide the basic food analysis knowledge required by both food science and human nutrition undergraduate students.

Course Goals

1. Be familiar with the current state of knowledge on food composition
2. Describe the principles and practical importance of analytical techniques associated with proximate food analysis
3. Know methods of selecting appropriate analytical techniques when presented with a practical problem
4. Demonstrate practical proficiency and teamwork in a food analysis laboratory and effective communication of the laboratory results
5. Be able to use library and internet resources pertaining to food analysis

Course Learning Objectives

At the end of the course, students should:

1. Be familiar with the current state of knowledge on food composition
    - *Identify reasons for determining composition and characteristics of food*
    - *Locate and interpret data for food composition in scientifically sound sources*
    - *Describe the role of food analysis in relation to food standards and regulations*
    - *Apply statistical principles to evaluation of food*

2. Describe the principles and practical importance of analytical techniques associated with proximate food analysis
    - *Describe principles and relevant theory used to determine moisture, carbohydrate, lipid, proteins, and ash content of a food*

3. Know methods of selecting appropriate analytical techniques when presented with a practical problem
    - *Identify and prioritize factors to be considered when selecting a method of analysis*
    - *Independently research scientific information*
    - *Discuss the pros and cons of classical methods*

4. Demonstrate practical proficiency and teamwork in a food analysis laboratory and effective communication of the laboratory results
    - *Determine proximate analyses of food*
    - *Work effectively in groups*
    - *Apply appropriate statistical principles to evaluate analytical results*
    - *Write concise, organized laboratory reports that demonstrate proper data handling and interpretation*

5. Be able to use library and internet resources pertaining to food analysis

- *Identify publications in which standard methods of food analyses and nutrient composition are found*
- *Select appropriate academic and professional journals in the field*
- *Use online library data bases to search and acquire articles*
- *Identify reliable internet sources*
- *Use correct referencing techniques*

Textbook, Readings, and Course Materials

Required textbook:

Food Analysis, 4th Edition. S. Suzanne Nielsen (ed.) 2010. Springer.

There is unlimited access to this book via UofM license agreement with Springer Publishing Co. It can be obtained at the following link: http://link.springer.com.uml.idm.oclc.org/book/10.1007/978-1-4419-1478-1/page/1 Note that the link is also available through UM Learn.

Supplementary readings:

Food Chemistry, 5th Edition. S. Damodaran (ed.) 2017. CRC Press, Taylor and Francis. Only Chapters 2,3,4 and 5.
This book is available through following link through libraries website.
https://search.lib.umanitoba.ca/discovery/fulldisplay?docid=cdi_askewsholts_vlebooks_9781482208139&context=PC&vid=01UMB_INST:UMB&lang=en&search_scope=MyInst_and_CI&adaptor=Primo%20Central&tab=Everything&query=any,contains,Food%20Chemistry%20Fenema&offset=0

Using Copyrighted Material

Please respect copyright. Copyrighted content used in this course is appropriately acknowledged and has been used in accordance with copyright laws and University guidelines. Copyrighted works, including those created by the instructor, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the *Copyright Act* applies or written permission has been confirmed. For more information, see the University's Copyright Office website at http://umanitoba.ca/copyright/ or contact um_copyright@umanitoba.ca.

Course Technology

The instructor's general policy is that students should refrain from any behaviour that may be distracting to other students. Accordingly, the use of cell phones for personal reasons or frivolous use of personal computer devices (e.g. not for following lecture slides posted to UM Learn) is not permitted. Such use of electronic accessories is invariably a distraction for other students at the very least, and interferes with the effectiveness of the classroom learning environment in general.

Expectations: I Expect You To

I will treat you with respect and would appreciate the same courtesy in return. See Respectful Work and Learning Environment Policy.

I expect you to follow these policies around Class Communication, Academic Integrity, and Recording Class Lectures.

Class Communication:
You are required to obtain and use your University of Manitoba email account for all communication between yourself and the university. All communication must comply with the Electronic Communication with Student Policy:
https://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html

Academic Integrity:
Each student in this course is expected to abide by the University of Manitoba Academic Integrity principles. Always remember to reference the work of others that you have used. Also be advised that you are required to complete your assignments independently unless otherwise specified. If you are encouraged to work in a team, ensure that your project complies with the academic integrity regulations. You must do your own work during exams. Inappropriate collaborative behavior and violation of other Academic Integrity principles, will lead to the serious disciplinary action. Visit the Academic Calendar, Student Advocacy, and Academic Integrity web pages for more information and support.

Specific course requirements for academic integrity for individual and group work:

I. Group projects are subject to the rules of academic dishonesty;
II. Group members must ensure that a group project adheres to the principles of academic integrity;
III. Students will work on assignments with provided lab data (for each group), but need to submit a individual lab reports.
IV. All work should be completed independently unless otherwise specified.

Recording Class Lectures:
The instructor and the University of Manitoba hold copyright over the course materials, presentations and lectures which form part of this course. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission from Dr. Chamila Nimalaratne. Course materials (both paper and digital) are for the participant's private study and research only.

Student Accessibility Services:
The University of Manitoba is committed to providing an accessible academic community. Students Accessibility Services (SAS) offers academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

Student Accessibility Services
520 University Centre
Phone: (204) 474-7423

Email: Student_accessibility@umanitoba.ca

Expectations: You Can Expect Me To

I will be available for class for 10 minutes prior to and after the class time to discuss any questions or comments you may have.
Also, I will respond to any email related to class within 24 hr.

CLASS SCHEDULE AND COURSE EVALUATION

The schedule provided below is subject to change at the discretion of the instructor but such changes are subject to Section 2.8 of the – ROASS- Procedure.

Overall Mark Allocation for Course (NB. students can expect to have marks for 2 quizzes, 1 term test, and 5 lab reports before the Voluntary Withdrawal date, November 23, 2020)

Term tests[a] (each 75 min; 2@18.5%)	37%
10-15 min quizzes[b], 2@ 6%	12%
Lab Reports[c] (7@ ~ 3%*) *Refer to table below for precise % value	21%
Final Examination (all lecture sections, 3 hr)[d]	30%
Total	100%

[a]Term tests are tentatively scheduled on Oct. 27 and Nov. 26.

[b]Quizzes are tentatively schedules on Oct. 6, Nov. 17.

[c]Lab reports (except Lab#1) are due 2 weeks after laboratory session according to schedule and instructions below. Penalty for late submission is deduction of 10%/day of original mark. Refer to LAB SCHEDULE below for due dates.

[d]Final exam date will be set by the Registrar's Office.

Date	Class Content & Teaching Strategies	Required Readings or any Pre-class Preparation	Evaluation		
			Type of Assessment	Due Date	Value of Final Grade
	Major concepts to be covered				
Sep 10	Course Outline				
Sep 15	Introduction: Rationale & background	Chapter 1			
Sep 17	Introduction: Government standards	Chapter 2			
Sep 22	Introduction: Databases and methods	Chapter 3			
Sep 24	Statistics in Food Analysis - Class 1	Chapter 4			
Sep 29	Statistics in Food Analysis - Class 2	Chapter 4			
Oct 01	Scale of Analytical Measurement	Chapter 4			
Oct 06	Moisture Analysis - Introduction **(Quiz 1 during the class)**	Chapter 6	Quiz 1	6th Oct 2020	6.0%

Oct 08	Moisture Analysis - Introduction	Chapter 6			
Oct 13	Moisture Analysis - Practical Considerations	Chapter 6			
Oct 15	Moisture Analysis - Methods part A	Chapter 6			
Oct 20	Moisture Analysis - Methods part B (chemical & instrumental methods)	Chapter 6			
Oct 22	Converting analyte concentrations between moisture bases	Chapter 6			
Oct 27	**Term test - 1**		Term test 1	27th Oct 2020	18.5%
Oct 29	Lipid Analysis - Introduction	Chapter 8			
Nov 03	Lipid Analysis - Sample preparation & solvent consideration	Chapter 8			
Nov 05	Lipid Analysis - Proximate analysis for dry and dairy samples	Chapter 8			
Nov 10	**Fall Term Break - No Classes**				
Nov 12	**Fall Term Break - No Classes**				
Nov 17	Protein Analysis - Introduction **(Quiz 2 during class)**	Chapter 9	Quiz 2	17th Nov 2020	6.0%
Nov 19	Protein Analysis - Methods - Class 1	Chapter 9			
Nov 24	Protein Analysis - Methods - Class 2	Chapter 9			
Nov 26	**Term test - 2**		Term test 2	26th Nov 2020	18.5%
Dec 01	Carbohydrate Analysis - Introduction	Chapter 10			
Dec 03	Carbohydrate Analysis - Total, mono, di and oligosaccharide	Chapter 10			
Dec 08	Carbohydrate Analysis - Starch	Chapter 10			
Dec 10	Review of past materials – final exam preparations		Final exam	To be Decided	30.0%
			Lab Reports	See the lab schedule	21.0%
			Total		**100%**

Important Information about Evaluation Procedures

- There are no makeup quizzes, if absent for a quiz without a proper physician note or substantiated and compelling personal matter documented in writing, the quiz mark = 0. If a valid excuse is provided, the value of the quiz mark to be added to the next following term test or final exam.
- If a student is absent for a term test and provides a proper physician note or written explanation of a substantiated and compelling personal matter, a makeup test will be scheduled as soon as possible. Otherwise a term test mark of 0 will be applied.
- If you are a student with a disability, please contact Student Accessibility Services (SAS) for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation. Student Accessibility Services

http://umanitoba.ca/student/saa/accessibility/, 520 University Centre, phone: 204-474 7423, email: Student_accessibility@umanitoba.ca

Lab Expectations

Any communication related to the lab section of the course have to be primarily directed to the lab TA. If you need further clarifications on the lab section you can reach me using my email (preferred method of communication - Chamila.Nimalaratne@umanitoba.ca)

Lab Schedule (tentative)

Date	Lab Content & Teaching Strategies	Required Readings or Pre-Class Preparations	Evaluation		
			Type of Assessment	Due Date	Value of Final Grade
Dates	Major concepts to be covered				
B01 - Sep 16 B02 – Sep 17 (Sep 23/24 no labs)	Lab #1 Assessment of lab accuracy and precision. includes safety review and chemistry essentials	Lab Manual Chapters 1, 2, 3, 4	Lab Report	B01 - Sep 30 B02 – Oct 01	3.7%
B01 – Sep 30 B02 – Oct 01	Lab #2 Moisture determination of ground-beef	Lab Manual Chapter 5	Lab Report	B01 - Oct 14 B02 – Oct 15	2.7%
B01 – Oct 07 B02 – Oct 08	Lab #3 Crude fat in ground beef by Soxhlet method	Lab Manual Chapter 6	Lab Report	B01 - Oct 21 B02 – Oct 22	3.0%
B01 – Oct 14 B02 – Oct 15	Lab #4 Protein determination of ground beef by Kjeldahl method	Lab Manual Chapter 7	Lab Report	B01 - Oct 28 B02 – Oct 29	2.7%
B01 – Oct 21 B02 – Oct 22	Lab #5 Total carbohydrate determination in a beverage product	Lab Manual Chapter 8	Lab Report	B01 - Nov 04 B02 – Nov 05	3.2%
B01 – Oct 28 B02 – Oct 29	Lab #6 Glucose content by enzymatic method	Lab Manual Chapter 9	Lab Report	B01 - Nov 16 B02 – Nov 17	3.2%
B01 – Nov 04 B02 – Nov 05	Lab #7 Nutritional labeling: Genesis R & D software	Lab Manual Chapter 10	Lab Report	B01 - Nov 18 B02 – Nov 19	2.7%
					21.0%

LABORATORY EXPECTATIONS

- The overall goal is to give students practical experience in the analysis of proximate components in foods, and for students to learn to effectively work in groups. The labs for this course are group

projects that require students to virtually attend the labs they are registered for. There will be a total of 21% of the final grade given for labs. NB. Students must pass the lab component of the course with minimum 60% to pass the course. Failure to reach this standard will result in assignment of "F" grade. The lab manual is available on UMLearn.

- Virtual lab attendance is mandatory (there are no makeup labs). 100% of mark allocated to a lab will be deducted if absent without a physician note or documentation of a compelling personal matter.
- For labs, students will work in groups as assigned, but each student will submit his/her own report. Any evidence of plagiarism in lab reports (e.g. whether from another lab partner, or group, or lab report from previous courses) will result in "0" mark and matter will be subject to disciplinary action in accordance with university policy on academic misconduct.

Grading

Indicate your grading scale. A sample is given below that you can adjust to your course expectations.

Letter Grade	Percentage out of 100	Grade Point Range	Final Grade Point
A+	95-100	4.25-4.5	4.5
A	86-94	3.75-4.24	4.0
B+	80-85	3.25-3.74	3.5
B	72-29	2.75-3.24	3.0
C+	65-71	2.25-2.74	2.5
C	60-64	2.0-2.24	2.0
D	50-59	Less than 2.0	1.0
F	Less than 50		0

Voluntary Withdrawal

The last day to drop the class and receive 100% refund is 22nd September 2020. And the last day to withdraw with no refund (voluntary withdrawal) is 23rd November 2020. Students who did not drop the course by the 23rd November 2020 deadline would be assigned a final grade. However, withdrawal courses will be recorded on official transcript. Please refer to the Registrar's Office web page for more information.

ASSIGNMENT DESCRIPTIONS / FEEDBACK / RUBRICS

- Lab reports will be marked using the rubric provided below. For each lab, students will be able to access their marks on UM Learn for each part of the rubric, usually after 1week from the report submission due date.

FOOD 4160 Lab Marking Summary (basic lab with no questions = 15 points)

Lab Report Section	Criteria
Introduction (3.0 pts)	Importance of lab with respect to both food analysis and the food industry is discussed (1.0 pts). Objectives of practical work are clearly stated (0.5 pts). Relevant theory or background (Lab#7) is clearly summarized (1.5 pts).
Materials and Methods (0.5 pts)	Do not copy information that is already in lab manual. All reagents, procedures, sampling techniques, etc., used are stated by correct reference to lab manual (include citation and reference). Do indicate changes or modifications made, if any.
Results (2.5 pts)	All data presented with proper units and precision (1.0 pts) Sample of each calculation is given (0.5 pts) Tables and figures have appropriate titles. Tables and figures and should be self-explanatory even if standing alone (0.5 pts) Statistical analysis is presented where appropriate (0.5 pts)
Discussion (3.0 pts)	Results are restated with reference to appropriate tables and figures (0.5 pts). Results are concisely and completely interpreted and related to the objectives of the lab (1.5 pts). Possible sources of error are discussed (0.5 pts). Results are compared to values found in scientific literature (0.5 pts).
Summary and Conclusions (1.5 pts)	Under the heading “Summary”, the most pertinent results are concisely summarized – bullet form is recommended (0.5 pts). Conclusions stated relate to the main objectives of the lab (1.0 pts). No new information is introduced.
References (1.0 pts)	In-text citations are included and referencing style is correctly and consistently used (0.5 pts). The lab manual and a minimum of two additional sources are cited (peer-reviewed journals and textbooks are acceptable) (0.5 pts).
Presentation and Formatting (3.5 pts)	Title page present including the following: Lab title and number, course name and number, date, student name and number, group number and lab partner(s) name(s) (0.25 pts). Generally free of errors in spelling and grammar (1.0 pts). Text is easy to understand with logical flow (1.0 pts). Tables and figures are formatted correctly and style is consistent (1.25 pts).
Questions (variable)	Lab #1: Q1-Q3 = 1 point each, Q4 = 0.5 pts Lab #3: Q1 = 0.5 point, Q2 = 1.0 pts Lab #5: Q1, Q2 = 1 point each, Q3 = 0.5 pts Lab #6: Q1, Q2 = 1 point each, Q3 = 0.5 pts

Detailed Laboratory Rubric

Criteria	Level 5	Level 4	Level 3	Level 2	Level 1
Introduction (3.0 pts)					
Objectives of practical work are clearly stated. (0.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Importance of lab with respect to both food analysis and the food industry is discussed. (1.0 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Relevant theory is clearly outlined. (1.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Materials and Methods (0.5 pts)					
All reagents, procedures, sampling techniques, etc., used in the lab are stated. However, do not copy information that is already in the lab manual; give references and indicate changes or modifications made, if any. (0.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Results (2.5 pts)					
All data is precisely presented with proper units and precision. (1.0 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.

A sample of each calculation is given. (0.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Tables and figures are given appropriate titles. Tables and figures should be self-explanatory even if standing alone. (0.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Statistical analysis is present where appropriate. (0.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Discussion (3.0 pts)					
Results are restated with reference to appropriate tables and figures. (0.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Results are concisely and completely interpreted and related to the objectives of the lab. (1.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Possible sources of error are discussed. (0.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Results are compared to values found in scientific literature. (0.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Summary and Conclusions (1.5 pts)					

The most pertinent results are summarized concisely. (0.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Conclusions stated which relate to the main objectives of the lab. (1.0 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
No new information is introduced. (potential loss of marks)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
References (1.0 pts)					
In-text citations and referencing style are correctly implemented. (0.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
The lab manual and a minimum of two additional sources are cited (peer-reviewed journals and textbooks are acceptable). (0.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Presentation and Formatting (3.5 pts)					
Title page present including the following: Lab title and number, course name and number, date, student name and number, group number and lab partner(s) name(s). (0.25 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Generally free of errors in spelling and grammar. (1.0 pts)	Excellent: All aspects of	Good: Expectations are nearly met with	Satisfactory: Some aspects	Insufficient: Below expectations.	Not present: Criteria

	criteria are clearly met.	minor elements missing.	not present or unclear.		are not met.
Text is easy to understand with logical flow. (1.0 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.
Tables and figures are formatted correctly and style is consistent. (1.5 pts)	Excellent: All aspects of criteria are clearly met.	Good: Expectations are nearly met with minor elements missing.	Satisfactory: Some aspects not present or unclear.	Insufficient: Below expectations.	Not present: Criteria are not met.

Examples of Properly Prepared Table and Figures.

Table 1. Physical and compositional characteristics of selected wheat samples.

Data type	Sample set	Particle size index (%)	Wheat ash (%)	Wheat protein (%)	Wheat total pentosan (%)
Mean	2011S1	60.6	1.38	12.5	4.64
	2011S2	58.7	1.45	12.2	4.51
	2011All	59.7	1.41	12.3	4.58
	2012	54.9	1.44	13.1	4.46
Range	2011S1	56.1-65.1	1.21-1.64	11.3-14.4	4.03-5.31
	2011S2	50.2-62.9	1.26-1.60	11.1-13.0	4.08-5.02
	2011All	50.2-65.1	1.21-1.64	11.1-14.4	4.03-5.31
	2012	47.6-61.8	1.22-1.72	12.0-15.1	3.84-5.56
Relative standard deviation	2011S1	4.37	8.61	6.51	8.56
	2011S2	5.54	7.45	4.76	6.45
	2011All	5.15	8.21	5.78	7.59
	2012	4.36	7.09	4.98	8.08

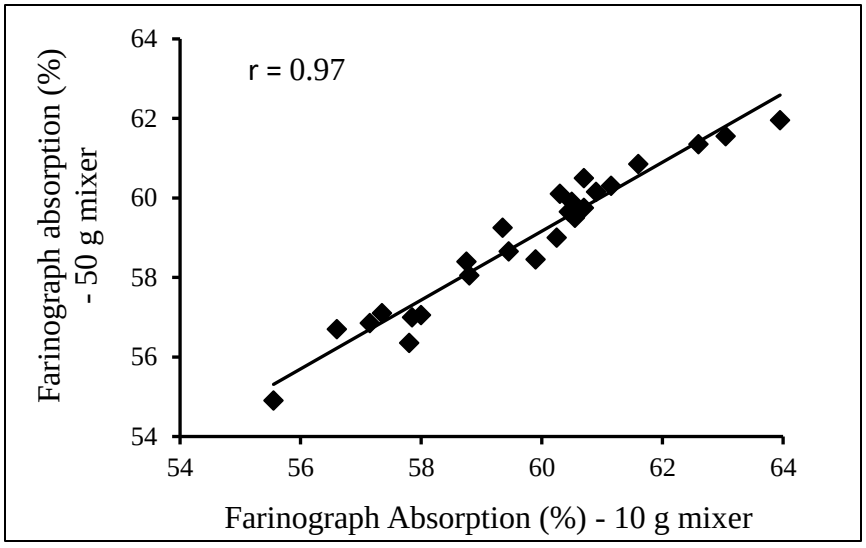

Figure 1. Relationship between farinograph absorption determined using 50 and 10 g mixing bowls.

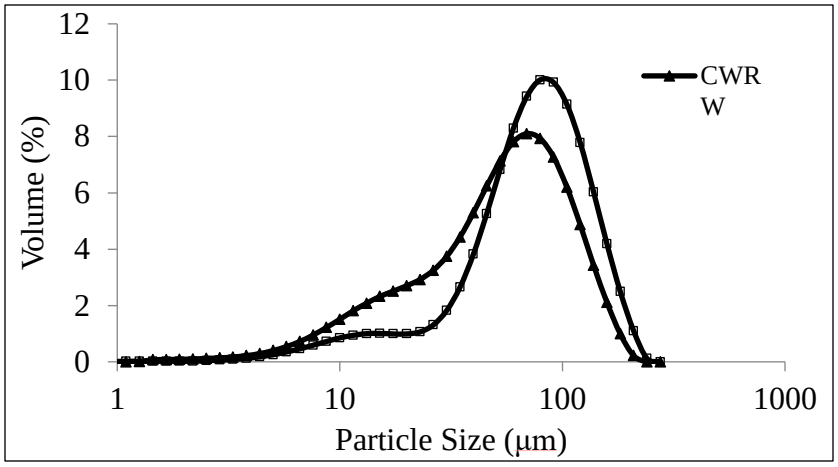

Figure 2. Average flour particle size distribution by laser diffraction of commercial Canada Western Red Winter (CWRW) wheats and Canada Western Red Spring (CWRS) wheats.

Referencing Style

Assignments should use the APA reference style as outlined in the text: American Psychological Association. (2009). Publication manual of the American Psychological Association (6th ed.). Washington, DC: Author.

Assignment Extension and Late Submission Policy

Lab reports are generally due 2 weeks after laboratory session according to schedule and instructions. Penalty for late submission is deduction of 10%/day of original mark. Refer to LAB SCHEDULE below for due dates. UM Learn submission of assignments is the accepted method of handing over assignment..

UNIVERSITY SUPPORT OFFICES & POLICIES

The Schedule "A" provides information on university support offices and policies available for students during the academic terms.

Schedule "A" – completed below this point, delete this once finalized

Writing and Learning Support

The Academic Learning Centre (ALC) offers services that may be helpful to you throughout your academic program. Through the ALC, you can meet with a learning specialist to discuss concerns such as time management, learning strategies, and test-taking strategies. The ALC also offers peer supported study groups called Supplemental Instruction (SI) for certain courses that students have typically found difficult. In these study groups, students have opportunities to ask questions, compare notes, discuss content, solve practice problems, and develop new study strategies in a group-learning format.

You can also meet one-to-one with a writing tutor who can give you feedback at any stage of the writing process, whether you are just beginning to work on a written assignment or already have a draft. If you are interested in meeting with a writing tutor, reserve your appointment two to three days in advance of the time you would like to meet. Also, plan to meet with a writing tutor a few days before your paper is due so that you have time to work with the tutor's feedback.

These Academic Learning Centre services are free for U of M students. For more information, please visit the Academic Learning Centre website at: http://umanitoba.ca/student/academiclearning/

You can also contact the Academic Learning Centre by calling 204-480-1481 or by visiting 205 Tier Building.

University of Manitoba Libraries (UML)

As the primary contact for all research needs, your liaison librarian can play a vital role when completing academic papers and assignments. Liaisons can answer questions about managing citations, or locating appropriate resources, and will address any other concerns you may have, regarding the research process. Liaisons can be contacted by email or phone, and are also available to meet with you in-person. A complete list of liaison librarians can be found by

subject: http://bit.ly/WcEbA1 or name: http://bit.ly/1tJ0bB4. In addition, general library assistance is provided in person at 19 University Libraries, located on both the Fort Garry and Bannatyne campuses, as well as in many Winnipeg hospitals. For a listing of all libraries, please consult the following: http://bit.ly/1sXe6RA. When working remotely, students can also receive help online, via the Ask-a-Librarian chat found on the Libraries' homepage:www.umanitoba.ca/libraries.

Section (b) provides information regarding mental health resources that are available at University of Manitoba:

For 24/7 mental health support, contact the Mobile Crisis Service at 204-940-1781.

Student Counselling Centre
Contact SCC if you are concerned about any aspect of your mental health, including anxiety, stress, or depression, or for help with relationships or other life concerns. SCC offers crisis services as well as individual, couple, and group counselling. *Student Counselling Centre:* http://umanitoba.ca/student/counselling/index.html
474 University Centre or S207 Medical Services
(204) 474-8592

Student Support Case Management
Contact the Student Support Case Management team if you are concerned about yourself or another student and don't know where to turn. SSCM helps connect students with on and off campus resources, provides safety planning, and offers other supports, including consultation, educational workshops, and referral to the STATIS threat assessment team.
Student Support Intake Assistant http://umanitoba.ca/faculties/education/current/474.html
520 University Centre
(204) 474-7423

University Health Service
Contact UHS for any medical concerns, including mental health problems. UHS offers a full range of medical services to students, including psychiatric consultation.
University Health Service http://umanitoba.ca/student-supports/health-wellness/university-health-service
104 University Centre, Fort Garry Campus
(204) 474-8411 (Business hours or after hours/urgent calls)

Health and Wellness
Contact our Health and Wellness Educator if you are interested in peer support from *Healthy U* or information on a broad range of health topics, including physical and mental health concerns, alcohol and substance use harms, and sexual assault.
Health and Wellness Educator http://umanitoba.ca/student-supports/health-wellness
Contact Health and Wellness Educator 204-295-9032 or britt.harvey@umanitoba.ca for more information.

Live Well @ UofM
For comprehensive information about the full range of health and wellness resources available on campus, visit the Live Well @ UofM site:
http://umanitoba.ca/student/livewell/index.html

Section (c): A notice with respect to copyright:

> All students are required to respect copyright as per Canada's *Copyright Act*. Staff and students play a key role in the University's copyright compliance as we balance user rights for educational purposes with the rights of content creators from around the world. The Copyright Office provides copyright resources and support for all members of the University of Manitoba community. Visit http://umanitoba.ca/copyright/ for more information.

Section (d): A statement directing the student to University and Unit policies, procedures, and supplemental information available on-line:

> **Your rights and responsibilities**
>
> As a student of the University of Manitoba you have rights and responsibilities. It is important for you to know what you can expect from the University as a student and to understand what the University expects from you. Become familiar with the policies and procedures of the University and the regulations that are specific to your faculty, college or school.
>
> The Academic Calendar http://umanitoba.ca/student/records/academiccalendar.html is one important source of information. View the sections *University Policies and Procedures* and *General Academic Regulations*.
>
> While all of the information contained in these two sections is important, the following information is highlighted.
>
> - If you have questions about your grades, talk to your instructor. There is a process for term work and final **grade appeals**. Note that you have the right to access your final examination scripts. See the Registrar's Office website for more information including appeal deadline dates and the appeal form http://umanitoba.ca/registrar
>
> - You are expected to view the General Academic Regulation section within the Academic Calendar and specifically read the **Academic Integrity** regulation. Consult the course syllabus or ask your instructor for additional information about demonstrating academic integrity in your academic work. Visit the Academic Integrity Site for tools and support http://umanitoba.ca/student-supports/academic-supports/academic-integrity. View the **Student Academic Misconduct** procedure for more information.
>
> - The University is committed to a respectful work and learning environment. You have the right to be treated with respect and you are expected conduct yourself in an appropriate respectful manner. Policies governing behavior include the:
>
> **Respectful Work and Learning Environment**
>
> http://umanitoba.ca/admin/governance/governing_documents/community/230.html
>
> **Student Discipline**
> http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html and,

Violent or Threatening Behaviour
http://umanitoba.ca/admin/governance/governing_documents/community/669.html

- If you experience **Sexual Assault** or know a member of the University community who has, it is important to know there is a policy that provides information about the supports available to those who disclose and outlines a process for reporting. The **Sexual Assault** policy may be found at:
  http://umanitoba.ca/admin/governance/governing_documents/community/230.html
  More information and resources can be found by reviewing the Sexual Assault site
  http://umanitoba.ca/student-supports/sexual-violence-support-and-education

- For information about rights and responsibilities regarding **Intellectual Property** view the policy
  https://umanitoba.ca/admin/governance/governing_documents/community/235.html

For information on regulations that are specific to your academic program, read the section in the Academic Calendar and on the respective faculty/college/school web site
http://umanitoba.ca/faculties/

Contact an **Academic Advisor** within our faculty/college or school for questions about your academic program and regulations http://umanitoba.ca/academic-advisors/

Student Advocacy

Contact Student Advocacy if you want to know more about your rights and responsibilities as a student, have questions about policies and procedures, and/or want support in dealing with academic or discipline concerns.
http://umanitoba.ca/student-supports/academic-supports/academic-advising
520 University Centre
204 474 7423
http://umanitoba.ca/student-supports/academic-supports/student-advocacy