COURSE DETAILS

Course Title & Number: FOOD 4160 Food Analysis I  
Number of Credit Hours: 3  
Class Times & Days of Week: Tue, Thurs 8:30 – 9:45  
Location for classes: 344 Ellis Building  
Location for labs: Lab Section B01 – 241 Ellis Building, Wed. 2:30-5:30 PM  
Pre-Requisites: FOOD 2500 Food Chemistry

INSTRUCTOR CONTACT INFORMATION

Instructor(s) Name: Dr. Harry Sapirstein  
Preferred Form of Address: Instructor will respond to any civil form of address  
Office Location: Room 264 Ellis Building  
Office Hours or Availability: Tuesday, Thursday 1:30 – 2:30 PM; Other times by appointment  
Office Phone No. 204-474-6481  
Email: Harry.Sapirstein@umanitoba.ca (preferred method of communication)  
All emails should contain FOOD 4160 at the start of the subject line, followed by your given name, family name

COURSE 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.

TEXTS/REFERENCES

There is unlimited access to this book via UofM license agreement with Springer Publishing Co.  
It can be obtained at the following link:  
Note that the link is also available through UM Learn.
LEARNING OUTCOMES

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
LECTURE TOPICS

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.

Lecture Outline:

1. Introduction (Chapters 1-5 in Nielsen, 2010)
   1.1 Rationale for food composition knowledge and food analysis
   1.2 Food standards and food regulations
   1.3 Databases and official methods
   1.4 Sampling and sample preparation
   1.5 Statistical evaluation and reporting of analytical data
   1.6 Conversion of Scale of analytical measurements

2. Moisture determination (Chapter 6 in Nielsen, 2010)
   2.1 Introduction- importance of moisture
   2.2 Factors to be considered when selecting a method for moisture analysis
   2.3 Moisture determination by evaporative methods, sublimation and distillation
   2.4 Moisture determination by chemical and instrumental methods
   2.5 Conversion of analyte values from one moisture basis to another

3. Ash and total mineral analysis (Chapter 7 in Nielsen, 2010)
   3.1 Ash determination by dry ashing and wet digestion

4. Lipid analysis (Chapter 8 in Nielsen, 2010)
   4.1 Introduction, reasons for lipid analysis
   4.2 Sample preparation
   4.3 Solvent selection
   4.4 Lipid determination using organic solvents
   4.5 Lipid analysis without organic solvents

5. Protein analysis (Chapter 9 in Nielsen, 2010)
   5.1 Introduction – need for protein analysis
   5.2 Protein content based on nitrogen content and conversion factors
   5.3 Protein determination by colourimetric/spectroscopic methods

6. Carbohydrate analysis (Chapter 10 in Nielsen, 2010)
   6.1 Introduction – need for carbohydrate analysis
   6.2 Analysis of Total Carbohydrate + mono-, di-, and oligosaccharides
   6.3 Analysis of polysaccharides
   6.4 Analysis of Fibre
COURSE EVALUATION METHODS

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, Nov. 19)

<table>
<thead>
<tr>
<th>Term tests(^a) (each 1 hr; 2@18.5%)</th>
<th>37%</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-15 min quizzes(^b), 3@ 4%</td>
<td>12%</td>
</tr>
<tr>
<td>Lab Reports(^c) (7@ ~ 3%*) *Refer to lab manual for precise % value</td>
<td>21%</td>
</tr>
<tr>
<td>Final Examination (all lecture sections, 3 hr)(^d)</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

\(^a\)Term tests are tentatively scheduled on Oct. 18 and Nov. 8 (change to Nov. 21)  
\(^b\)Quizzes are tentatively scheduled on Oct. 4, Nov. 1, Nov. 8, Dec. 4.  
\(^c\)Lab reports (except Lab#1) are due 2 weeks after laboratory session; penalty for late submission is deduction of 10%/day of original mark.  
\(^d\)Final exam date will be set by the Registrar’s Office.

### GRADING

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Category</th>
<th>Grade Point Range</th>
<th>Final Grade Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>exceptional</td>
<td>90-100</td>
<td>4.5</td>
</tr>
<tr>
<td>A</td>
<td>excellent</td>
<td>80-89.9</td>
<td>4.0</td>
</tr>
<tr>
<td>B+</td>
<td>very good</td>
<td>75-79.9</td>
<td>3.5</td>
</tr>
<tr>
<td>B</td>
<td>good</td>
<td>67-74.9</td>
<td>3.0</td>
</tr>
<tr>
<td>C+</td>
<td>satisfactory</td>
<td>61-66.9</td>
<td>2.5</td>
</tr>
<tr>
<td>C</td>
<td>adequate</td>
<td>56-60.9</td>
<td>2.0</td>
</tr>
<tr>
<td>D</td>
<td>not adequate</td>
<td>50-55.9</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>fail</td>
<td>&lt; 50</td>
<td>0</td>
</tr>
</tbody>
</table>

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/](http://umanitoba.ca/student/saa/accessibility/), 520 University Centre, phone: 204-474 7423, email: [Student_accessibility@umanitoba.ca](mailto:Student_accessibility@umanitoba.ca)
LABORATORY EXPECTATION

- 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 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.

- 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.
**LAB SCHEDULE**

<table>
<thead>
<tr>
<th>Title</th>
<th>Lab Date</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lab #1 Assessment of lab accuracy and precision. includes safety review and chemistry essentials</td>
<td>Sept. 12</td>
<td>Sept. 18</td>
</tr>
<tr>
<td>No Lab session Sept. 19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Lab #2 Moisture determination of ground beef</td>
<td>Sept. 26</td>
<td>Oct. 9</td>
</tr>
<tr>
<td>No Lab session (Oct. 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Lab #3 Crude fat in ground beef by Soxhlet method*</td>
<td>Oct. 10,17</td>
<td>Oct. 23, 30</td>
</tr>
<tr>
<td>• Lab #4 Protein determination of ground beef by Kjeldahl method*</td>
<td>Oct. 10,17</td>
<td>Oct. 23, 30</td>
</tr>
<tr>
<td>• Lab #5 Total carbohydrate determination in a beverage product</td>
<td>Oct. 24</td>
<td>Nov. 6</td>
</tr>
<tr>
<td>• Lab #6 Glucose content by enzymatic method</td>
<td>Oct. 31</td>
<td>Nov. 12</td>
</tr>
<tr>
<td>• Lab #7 Nutritional labeling: Genesis R &amp; D software</td>
<td>Nov. 7</td>
<td>Nov. 20</td>
</tr>
</tbody>
</table>

* Labs 3 and 4 will be performed in successive weeks by ~ 50% of lab groups.

**FOOD 4160 Lab Mark Allocations**

<table>
<thead>
<tr>
<th></th>
<th>Total Score</th>
<th>Percentage of Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab #1</td>
<td>18.5</td>
<td>3.7</td>
</tr>
<tr>
<td>Lab #2</td>
<td>15</td>
<td>2.7</td>
</tr>
<tr>
<td>Lab #3</td>
<td>16.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Lab #4</td>
<td>15</td>
<td>2.7</td>
</tr>
<tr>
<td>Lab #5</td>
<td>17.5</td>
<td>3.2</td>
</tr>
<tr>
<td>Lab #6</td>
<td>17.5</td>
<td>3.2</td>
</tr>
<tr>
<td>Lab #7</td>
<td>15</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Sum = 21%</strong></td>
</tr>
</tbody>
</table>

**Important Information Regarding Lab Reports**

- Lab reports are due before 6:00 pm on day specified.
- Lab reports must be handed in as a hardcopy document (no special cover sheets please) in the black bin for the course on the wall opposite the instructor’s office (264 Ellis Building).
- 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 1 week from the report submission date.
### FOOD 4160 Lab Marking Summary (basic lab with no questions = 15 points)

<table>
<thead>
<tr>
<th>Lab Report Section</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction (3.0 pts)</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Materials and Methods (0.5 pts)</strong></td>
<td>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. Do indicate changes or modifications made, if any.</td>
</tr>
<tr>
<td><strong>Results (2.5 pts)</strong></td>
<td>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)</td>
</tr>
<tr>
<td><strong>Discussion (3.0 pts)</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Summary and Conclusions (1.5 pts)</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>References (1.0 pts)</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Presentation and Formatting (3.5 pts)</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Questions (variable)</strong></td>
<td>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</td>
</tr>
</tbody>
</table>
## Detailed Laboratory Rubric

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Level 5</th>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction (3.0 pts)</strong></td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
</tr>
<tr>
<td>Objectives of practical work are clearly stated. (0.5 pts)</td>
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</tr>
<tr>
<td>Importance of lab with respect to both food analysis and the food industry is discussed. (1.0 pts)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
</tr>
<tr>
<td>Relevant theory is clearly outlined. (1.5 pts)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
</tr>
<tr>
<td><strong>Materials and Methods (0.5 pts)</strong></td>
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<td></td>
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</tr>
<tr>
<td>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)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
</tr>
<tr>
<td><strong>Results (2.5 pts)</strong></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>All data is precisely presented with proper units and precision. (1.0 pts)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
</tr>
<tr>
<td>A sample of each calculation is given. (0.5 pts)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
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<tr>
<td></td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
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<tr>
<td>-------------------------------</td>
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</tr>
<tr>
<td>Tables and figures are given appropriate titles. Tables and figures should be self-explanatory even if standing alone. (0.5 pts)</td>
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<tr>
<td>Statistical analysis is present where appropriate. (0.5 pts)</td>
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<tr>
<td><strong>Discussion (3.0 pts)</strong></td>
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</tr>
<tr>
<td>Results are restated with reference to appropriate tables and figures. (0.5 pts)</td>
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</tr>
<tr>
<td>Results are concisely and completely interpreted and related to the objectives of the lab. (1.5 pts)</td>
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<tr>
<td>Possible sources of error are discussed. (0.5 pts)</td>
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</tr>
<tr>
<td>Results are compared to values found in scientific literature. (0.5 pts)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Summary and Conclusions (1.5 pts)</strong></td>
<td></td>
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</tr>
<tr>
<td>The most pertinent results are summarized concisely. (0.5 pts)</td>
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</tr>
<tr>
<td>Conclusions stated which relate to the main objectives of the lab. (1.0 pts)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No new information is introduced. (potential loss of marks)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
</tr>
<tr>
<td>References (1.0 pts)</td>
<td>In-text citations and referencing style are correctly implemented. (0.5 pts)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
</tr>
<tr>
<td>The lab manual and a minimum of two additional sources are cited (peer-reviewed journals and textbooks are acceptable). (0.5 pts)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
</tr>
<tr>
<td>Presentation and Formatting (3.5 pts)</td>
<td>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)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
</tr>
<tr>
<td>Generally free of errors in spelling and grammar. (1.0 pts)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
</tr>
<tr>
<td>Text is easy to understand with logical flow. (1.0 pts)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
</tr>
<tr>
<td>Tables and figures are formatted correctly and style is consistent. (1.5 pts)</td>
<td>Excellent: All aspects of criteria are clearly met.</td>
<td>Good: Expectations are nearly met with minor elements missing.</td>
<td>Satisfactory: Some aspects not present or unclear.</td>
<td>Insufficient: Below expectations.</td>
<td>Not present: Criteria are not met.</td>
</tr>
</tbody>
</table>
Examples of Properly Prepared Table and Figures.

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

<table>
<thead>
<tr>
<th>Data type</th>
<th>Sample set</th>
<th>Particle size index (%)</th>
<th>Wheat ash (%)</th>
<th>Wheat protein (%)</th>
<th>Wheat total pentosan (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2011S1</td>
<td>60.6</td>
<td>1.38</td>
<td>12.5</td>
<td>4.64</td>
</tr>
<tr>
<td></td>
<td>2011S2</td>
<td>58.7</td>
<td>1.45</td>
<td>12.2</td>
<td>4.51</td>
</tr>
<tr>
<td></td>
<td>2011All</td>
<td>59.7</td>
<td>1.41</td>
<td>12.3</td>
<td>4.58</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>54.9</td>
<td>1.44</td>
<td>13.1</td>
<td>4.46</td>
</tr>
<tr>
<td>Range</td>
<td></td>
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<tr>
<td></td>
<td>2011S1</td>
<td>56.1-65.1</td>
<td>1.21-1.64</td>
<td>11.3-14.4</td>
<td>4.03-5.31</td>
</tr>
<tr>
<td></td>
<td>2011S2</td>
<td>50.2-62.9</td>
<td>1.26-1.60</td>
<td>11.1-13.0</td>
<td>4.08-5.02</td>
</tr>
<tr>
<td></td>
<td>2011All</td>
<td>50.2-65.1</td>
<td>1.21-1.64</td>
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</table>

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

$r = 0.97$
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.
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.

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. Course materials (both paper and digital) are for the participant’s private study and research only.

TECHNOLOGY USE BY STUDENTS

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.

CLASS COMMUNICATION

The University requires all students to activate an official University email account. For full details of the Electronic Communication with Students please visit: http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2014_06_05.pdf

Please note that all communication between instructors and you as a student must comply with the electronic communication with student policy (http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html). You are required to obtain and use your U of M email account for all communication between yourself and the university.
INSTRUCTOR EXPECTATIONS

Students are expected to be courteous and civil to instructor and to your fellow students. Attendance in class is highly recommended. Understand that the notes posted to UMLearn may not be complete; attendance in class may be necessary to fill in key details. Questions will be used in class; students are expected to read and keep up so they will be able to respond to m questions, even if answers are not perfect.

STUDENT EXPECTATIONS

Students can expect the instructor to be respectful of your opinions, questions and response to questions, make every reasonable effort to answer your questions, mark your tests in a fair, equitable and prompt fashion, post class notes (and the lab manual) on UM Learn in a timely way.

STUDENT ACCESSIBILITY SERVICES

Student Accessibility Services
If you are a student with a disability, please contact 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

ACADEMIC INTEGRITY MATTERS

It is the responsibility of the student to know the rules! See UManitoba weblinks later in this section. Not knowing the rules is no excuse.

The University places a high value on academic honesty, and serious penalties exist for academic misconduct. Academic Misconduct means any conduct that has, or might reasonably be seen to have, an adverse effect on the academic integrity of the University, including but not limited to: plagiarism, cheating on quizzes, tests, or final examinations, inappropriate collaboration, duplicate submission, personation and academic fraud. Each of these is explained further below.

Plagiarism (and relevance to lab reports) – the presentation or use of information, ideas, images, sentences, findings, etc. as one’s own without appropriate citation in a written assignment, test or final examination. This is especially relevant in lab reports when you are relying on information from the textbook or other sources for theory, background or other information. You may be
tempted to take words directly (i.e. word-for word) from the textbook or another source either with or without attribution , i.e. reference. In that regard, NB the following:

- If you do take a string of words, i.e. a complete sentence or very close to one, directly from a source and use it in your lab report, the proper way to do so is to put those words in quotes and provide a reference in the correct format. However, this is strongly discouraged and, if over-used, may result in a downgrade of your overall lab mark (after an earlier warning).

- If you do take a string of words, such as a complete sentence, directly from a source and use it in your lab report without a reference, whether the text is embedded or not in quotes, and whether this was done intentionally or by mistake, know that this is plagiarism and is subject to disciplinary action in accordance with university policy on academic misconduct.

http://umanitoba.ca/admin/governance/media/Student_Academic_Misconduct_Procedures_-_2016_09_01.pdf

As a student, you are expected to submit original work and give credit to other peoples' ideas. Your best practice when writing lab reports and using information from published sources is to paraphrase text. However, you still must reference the source(s) of your material. For more information about paraphrasing, see the “paraphrasing” link and document at the UofM Center for Academic Learning website under “Handouts”:
http://umanitoba.ca/student/academiclearning/handouts/handouts.html

Cheating on Quizzes, Tests, or Final Examinations – the circumventing of fair testing procedures or contravention of exam regulations. Such acts may be premeditated/planned or may be unintentional or opportunistic.

Inappropriate Collaboration – when a student and any other person work together on assignments, projects, tests, labs or other work unless authorized by the course instructor. For laboratory reports, this also means using information/data from another lab group.

Duplicate Submission – cheating where a student submits a paper/assignment/test in full or in part, for more than one course without the permission of the course instructor.

Personation – writing an assignment, lab, test, or examination for another student, or the unauthorized use of another person’s signature or identification in order to impersonate someone else. Personation includes both the personator and the person initiating the personation.

Academic Fraud – falsification of data or official documents as well as the falsification of medical or compassionate circumstances/documentation to gain accommodations to complete assignments, tests or examinations.

Over the course of your university studies, you may find yourself in situations that can make the application of these definitions unclear. The University of Manitoba wants to help you be successful, and this includes providing you with the knowledge and tools to support your decisions to act with integrity. There are a number of people and places on campus that will help
you understand the rules and how they apply to your academic work. If you have questions or are uncertain about what is expected of you in your courses, you have several options:

- Ask your professor, instructor, or teaching assistant for assistance or clarification.
- Get support from the Academic Learning Centre: umanitoba.ca/student/academiclearning or Libraries: umanitoba.ca/libraries
- Visit the Academic Integrity site for information and tools to help you understand academic integrity: umanitoba.ca/academicintegrity/
- Make an appointment with the Student Advocacy office. This office assists students to understand their rights and responsibilities and provides support to students who have received an allegation of academic misconduct: https://umanitoba.ca/student/advocacy/

**Other Academic Integrity Resources – UMantoba Weblinks**

Academic integrity policies:
http://umanitoba.ca/student/resource/student_advocacy/academicintegrity/Academic-Integrity-policies-and-procedures.html

Academic discipline policies:
http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html

Avoiding plagiarism: http://libguides.lib.umanitoba.ca/c.php?g=298295&p=1988518

Cheating plagiarism and fraud:

Citing and referencing: http://libguides.lib.umanitoba.ca/c.php?g=298525&p=1992291

**Policy on Plagiarism and Cheating** (adapted from University calendar):

Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious academic penalty (e.g., suspension or expulsion from the faculty or university). Cheating in examinations or tests may take the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones). Exam cheating can also include exam impersonation. A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.

To plagiarize is to take ideas or words of another person and pass them off as one’s own. In short, it is stealing something intangible rather than an object. Plagiarism applies to any written work, in traditional or electronic format, as well as orally or verbally presented work. Obviously it is not necessary to state the source of well known or easily verifiable facts, but students are expected to appropriately acknowledge the sources of ideas and expressions they
**use in their written work, whether quoted directly or paraphrased.** This applies to diagrams, statistical tables and the like, as well as to written material, and materials or information from Internet sources.

To provide adequate and correct documentation is not only an indication of academic honesty but is also a courtesy which enables the reader to consult these sources with ease. Failure to provide appropriate citations constitutes plagiarism.

An assignment which is prepared and submitted for one course should not be used for a different course. This is called “**duplicate submission**” and represents a form of cheating because course requirements are expected to be fulfilled through original work for each course.

**When in doubt about any practice, ask your professor or instructor.**

The Student Advocacy Office, 519 University Centre, 474-7423, is a resource available to students dealing with Academic Integrity matters. [https://umanitoba.ca/student/advocacy/](https://umanitoba.ca/student/advocacy/)
RESPONSIBILITIES OF ACADEMIC STAFF WITH REGARD TO STUDENTS (ROASS)


The following information may be used to fulfill the requirement of Schedule “A.” Such information is to be provided to students within the first week of classes, either through a paper copy and/or a University student information system (including Aurora or UM Learn).

Section (a): A list of academic supports available to Students, such as the Academic Learning Centre, Libraries, and other supports as may be appropriate:

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 201 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): A statement regarding mental health that includes referral information:

**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](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/student/case-manager/index.html](http://umanitoba.ca/student/case-manager/index.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/health/](http://umanitoba.ca/student/health/)*
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 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/health-wellness/welcome.html](http://umanitoba.ca/student/health-wellness/welcome.html)*
Katie.Kutryk@umanitoba.ca
469 University Centre
(204) 295-9032
**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](http://umanitoba.ca/student/livewell/index.html)

**Section (e): 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](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/](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/academicintegrity/](http://umanitoba.ca/academicintegrity/) 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/sexual-assault/

• For information about rights and responsibilities regarding Intellectual Property view the policy
http://umanitoba.ca/admin/governance/media/Intellectual_Property_Policy_-_2013_10_01.pdf

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/advocacy/
520 University Centre
204 474 7423
student_advocacy@umanitoba.ca