



**University
of Manitoba**

**Faculty of Agricultural and Food Sciences
Department of Food and Human Nutritional Sciences**

**FOOD 3500 - Processing of Animal Food Products
Winter Term 2022**

COURSE DETAILS

Course Title & Number:	FOOD 3500 Processing of Animal Food Products; CRN 54815
Number of Credit Hours:	3
Class Times & Days of Week:	Lectures: Monday, Wednesday, and Friday, from 1:30 pm to 2:30 pm Laboratory: Section B1 Monday 4-6 pm.
Location for classes/labs/tutorials:	Lectures: Remotely through UM-Learn, then select Integrations > UM Zoom Laboratory: In-person, Department of Food Science, 250 Ellis Building Room 245, Pilot Plant Room 216
Teaching Assistants:	TBA
Pre-Requisites:	CHEM 2770 or MBIO 2770 or CHEM 2360 or MBIO 2360 or any other equivalent course. Consent of instructor. Offered in alternate years thereafter.

Instructor Contact Information

Instructor(s) Name:	Argenis Rodas-González
Preferred Form of Address:	Anything polite
Office Location:	Animal Science/Entomology Building RM 229
Office Hours or Availability:	Make an appointment, send an email or call me
Office Phone No.	(204)474-9523
Email:	Argenis.RodasGonzalez@umanitoba.ca
Contact:	If you want to contact me an email with the subject heading Food 3500 and your name is best, but you can see me after a class session. I expect to respond telephone and email queries within 24-48 hours (circumstances permitting) during the week. I will not normally be checking my email or UM-Learn on weekends and holidays.

Course Philosophy

Products of animal origin are a dynamic and exciting field which is very important in many economies around the world. Processing of animal products has to provide safety, nutritional, affordable and pleasant food for human consumption. The production of food under food quality and safety parameters and regulations is beyond the simple memorization of knowledge. It requires critical thinking, integration of knowledge and innovative approaches to problem solving. This course will combine classroom lectures, labs, group discussion, and multiple writing assignments.

Course Description

Processing of materials of animal origin will be studied with emphasis on product quality and safety. The impact of initial characteristics and further processing will be discussed as factors that can affect nutritive value, convenience, functionality, appearance, palatability, and food safety of the final product. Additionally, the course will provide practical experience in identifying the quality parameters, detect defects, and apply different technologies to obtain different foods of animal origin, through labs and field trips.

General Course Information

Builds on fundamental aspects of egg, muscle and milk biochemistry and function to explain how pre- and post-harvest technologies affect the quality and safety. Issues of current concern, their resolution as well as recent advances will be discussed.

This course is delivered remotely, particularly lectures. It uses a combined synchronous-asynchronous course design in lectures. Students are expected to be online during the scheduled class times and are expected to log in UM Learn between class times to keep up with discussion and readings. The labs will be delivered in-person,

Be aware that all live classes may be recorded and archived for students to view. If you do not want to be recorded, please turn off audio and video.

Course Objectives

1. To review the evolution over time and current trends of the different food commodities (egg, meat, and milk).
2. To identify the major constituents of egg, meat, milk, their characteristics and functions.
3. To explain how pre- and post-harvest factors affect the constituent properties and consequently the quality and processing attributes of egg, meat, and milk.
4. To recognize and explain the principles and current practices of processing techniques in egg, meat, and milk.
5. To recognize and explain the manufacturing process in the animal origin industry.

Learning Outcomes

1. Analyze how the food industry of egg, meat, and milk have changed over time.
2. Recognize and differentiate the chemistry and physical characteristics of constituents of egg, meat, and milk.
3. Describe, differentiate and analysis how pre- and post-harvest factors affect the quality and processing attributes of egg, meat, and milk.
4. Describe, differentiate and compare the principles and current practices of processing techniques to produce food products.
5. Acknowledge the contribution the animal origin industry in the food security of Canada.

Using Copyrighted Material

Example: Please respect copyright. We will use copyrighted content in this course. I have ensured that the content I use is appropriately acknowledged and is copied in accordance with copyright laws and University guidelines. Copyrighted works, including those created by me, 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

Dr. Rodas-González and the University of Manitoba hold copyright over the course materials, presentations and lectures which form part of this course. The remote synchronous teaching classes will be recorded for later on to be post it in the UM Learn, in consequence, be aware if you joint to the class, you are authorizing be recorded it. Beyond that, no other 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. Rodas-González. Course materials (both paper and digital) are for the participant's private study and research only, and must not be uploaded to the internet or shared in any way either physically or electronically.

Textbook, Readings, Materials

The following are recommended:

William J Stadelman; Owen J Cotterill. Egg science and technology. New York: Food Products Press c1995

- Y. Nys M Bain; F Van Immerseel. 2011. **Improving the Safety and Quality of Eggs and Egg Products. Vol 1. Egg Chemistry, Production and Consumption**. Woodhead Publishing Limited. UofM library online access.
- Elton D. Aberle, John C. Forrest, David E. Gerrard, Edward W. Mills. 2012. **Principles of Meat Science**. Kendall Hunt Publishing Company.
- Rodrigo Tarté. 2009. **Ingredients in Meat Products: Properties, Functionality and Applications**. Springer. UofM library online access.
- A.M. Pearson, T.A. Gillett. 2012. **Processed Meats**. Chapman & Hall.
- Singh, Harjinder Boland, Mike Thompson, Abby. 2014. **Milk Proteins - From Expression to Food** (2nd Edition). Elsevier. UofM library online access.
- Pieter Walstra, Jan T. M. Wouters, and Tom J. Geurts. 2005. **Dairy Science and Technology**. Second Edition. CRC Press. UofM library online access.
- Journals: Meat Science, Journal of Food Science, Journal of Dairy Science, Journal of Animal Science, Canadian Journal of Animal Science.

Course Technology

This course is delivered remotely. It uses a combined synchronous-asynchronous course design in lectures. Students are expected to be online during the scheduled class times and are expected to log in between class times to keep up with discussion and readings.

Your computer or device, and Internet connection must meet the UM minimum requirements found here <https://centre.cc.umanitoba.ca/wp-content/uploads/2020/04/Student-Connectivity-Recommendations.pdf>, <https://centre.cc.umanitoba.ca/wp-content/uploads/2020/04/Student-Connectivity-Recommendations.pdf>. These are required for all Fall 2020 classes. Students must have Zoom and i-Clicker installed.

The instructor could use e-proctoring technology such as Respondus Lockdown Browser and Monitor or Webex as proctoring tools.

UM Learn: Class notes and lab material will be posted on UMLearn. You should be aware that the notes posted are not complete and will require you to attend class to fill in key details. The instructor will spend a few minutes on the first day of classes demonstrating where these can be found in UMLearn.

Zoom: lectures will be delivered through this platform (UM Zoom-to-UM Learn integration).

iClickers: Students can use an **iClicker**, or the **iClicker Reef app** for answering questions during lecture and lab throughout the duration of the course.

For more information on how to set up and use iClicker Cloud in your course, visit:
<https://universityofmanitoba.desire2learn.com/d2l/le/content/6606/viewContent/1432626/View>
ew

If you have questions or need help, contact IST Service Desk (servicedesk@umanitoba.ca or 204-474-8600).

Respondus Lockdown Browser and Monitor or Zoom as proctoring tools

Cell phones and laptop computers: It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner. The student can use all technology in the classroom setting only for educational purposes approved by the instructor and/or the University of Manitoba Disability Services. Students should not participate in personal direct electronic messaging / posting activities (e-mail, texting, video or voice chat, wikis, blogs, social networking (e.g. Facebook) online and offline “gaming” during scheduled class time. If a student is on call (emergency), the student should switch his/her cell phone on vibrate mode and leave the classroom before using it. (adapted from ©[S Kondrashov](#). Used with permission)

Material for this course is uploaded to UM Learn. Please see this link for support:
http://intranet.umanitoba.ca/academic_support/catl/resources/359.html

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](http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2014_06_05.pdf)

Please note that all communication between myself 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](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.

Students Lounge in UM Learn: Post your questions or answers regarding getting access to UM Learn or doubts or material errors

Student Etiquette for Remote Learning

- ❖ Find a quiet area for live class sessions
- ❖ Choose a location with a reliable internet connection
- ❖ Have a power outlet near the workspace if the device needs to be charged
- ❖ Use a desk or a table for your computer/laptop/iPad that can hold any additional resources needed for class
- ❖ Beware of your surroundings (i.e., pictures/posters on wall behind you; things that you are doing – any things/people you do not want others to see during the live class)
- ❖ Attend classes on time or even a few minutes early to ensure there are no difficulties
- ❖ Be dressed appropriately during live/class meetings. Dress as you would normally do attending in-person classes
- ❖ Remove any distractions during live class sessions – turn off cellphones, no text messaging, no television, web browsing, email, etc

- ❖ Be respectful and courteous to fellow students, instructors and guest speakers at all times during live sessions. Remember you are still attending class!
- ❖ Come prepared for live sessions. Read the textbook and assigned readings prior to class. Not all the textbook/readings will be covered in the lectures and not all material covered in the lecture is found in the course textbook/readings.
- ❖ Be aware that all live classes may be recorded and archived for students to view. If you do not want to be recorded, please turn off audio and video.
- ❖ The UM-Learn Discussion Forum may be used for group participation. Communication must be respectful and thoughtful.

Expectations: I Expect You To

Attend,
Participate,
Demonstrate a willingness to learn,
Be courteous,
Show academic integrity and honesty.
Work effectively as a team to design and execute class activities.
Not to leave the class before it ends unless there is an emergency to which you must attend.
Leaving a class before the end is disrespectful to your instructor and disruptive towards your fellow students.
Not use your cell phone- Please be respectful in class and turn your cell phone off or onto vibration mode for the duration of the class.
Use your laptop computers to aid your learning- Laptops are a perfect way to take notes in class and share information with peers; be respectful to the instructor and other students while using laptops by staying on task in class. Answer questions that I will ask of the class. I do not expect you always (or ever!) to get the correct answer, but I do expect you to try and to participate.
See [Respectful Work and Learning Environment Policy](#).

Expectations: You Can Expect Me To

To treat you fairly and with respect.
To be available for consultation regularly.
To treat all of your questions and comments with respect and to take your concerns seriously.
To remain in the classroom for 5 minutes after class to answer any immediate questions.
To provide clarification or explanation at the time in class for any doubt.
To offer advice about class materials, assignments or exams.
To grade and return the assignments and exams within 2 weeks of the due date; late assignments will be graded as my time permits.
To ask questions and give everyone a chance to participate in class.

Academic Integrity

Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious academic penalty. Cheating in examinations or tests may take the form of copying from another student or bringing unauthorized materials into the exam room. 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. Students should acquaint themselves with the University's policy on plagiarism; cheating, exam impersonation and duplicate submission (http://umanitoba.ca/student/resource/student_advocacy/media/Advoc-Cheat-Booklet-rev04-web.pdf).

Students Accessibility Services (SAS)

In this course we support a climate of respect in the workplace and in the learning environment where individuals or groups of individuals are free from harassment and discrimination. For more information in this policy visit the following link:

http://umanitoba.ca/admin/governance/governing_documents/community/230.html

Student Support and Students Accessibility Services (SAS)

Student support:

Justin Bouchard, Diploma Academic Advisor
160 Agriculture Bldg.
Phone: 204-474-8269
e-mail: justin.bouchard@umanitoba.ca

[Responsibilities of Academic Staff with Regard to Students](#) (ROASS)

[Final Examination and Final Grades Policy](#)

[Respectful Work and Learning Environment Policy](#)

[Sexual Assault Policy](#)

[Student Advocacy Office Policy](#)

Student [Academic](#) and [Non-Academic](#) Misconduct Policies

[Student Discipline Appeal Procedure](#)

[The University of Manitoba Accessibility Policy](#)

[University Health Services Policy](#)

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

204 474 7423

Student_accessibility@umanitoba.ca

Respectful Work and Learning Environment

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Course Evaluation Methods

Assignments	Grade
Midterm exams (three at 10% each)	30%
Laboratory reports (four at 10% each)	40%
Class participation	10%
Final examination	30%

Grading

Standardized grades used are those followed by the Food Science Department:

Final grade	Letter Grade	Grade Point Value	
90 - 100%	A+	4.5	Exceptional
80 - 89%	A	4.0	Excellent
75 - 79%	B+	3.5	Very Good
67 - 74%	B	3.0	Good
61 - 66%	C+	2.5	Satisfactory
56 - 60%	C	2.0	Adequate
50 - 55%	D	1.0	Marginal
Under 50%	F	0.0	Failure
	P	Null	Pass

Note: Grades will not be curved.

Referencing Style

For each assignment, you are asked to write a paper 750 - 1000 words in length. This paper should be typed, double-spaced with a font size of 10 or 12. Margins should be 2.54 cm (1") on all sides. The format of the paper should follow Chicago style (include key items from the material we were

given, see Appendix). Assignments will be evaluated based on your ability to discuss the topic coherently and support the ideas presented. Points will be deducted for poor grammar and spelling.

Assignment Descriptions

Midterm exams: 30%

Short answer, short essay, multiple choices, fill the blank, true/false and/or matching.

Laboratory report: 40%.

Laboratory reports and lab exams will be completed by each student so as to apply all principles learned in the classroom and laboratory exercises. The report has to be submitted in UM-Learn system a week later of the activity. There will be two field trips.

Class Participation: 10%

Each class member is expected to contribute to some of the class discussions: asking and responding to questions, making comments or observations.

It will be used iClicker student response system in class this term. iClicker helps me to understand what you know and gives everyone a chance to participate in class.

The new iClicker Cloud software allows students to use their mobile devices to answer polling questions with no additional cost to them.

Grades from polling sessions can be stored on iClicker Cloud for retrieval at a later time or linked to your UM Learn course gradebook.

For more information on how to set up and use iClicker Cloud in your course, visit:

<https://universityofmanitoba.desire2learn.com/d2l/le/content/6606/viewContent/1432626/View>

If you have questions or need help, contact IST Service Desk (servicedesk@umanitoba.ca or 204-474-8600).

Final examination: 30%

The final exam will be comprehensive and will cover all lecture and lab materials and handouts.

Assignment Grading Times

All assignments handed in on time will be graded and returned within 2 weeks of the due date; late assignments will be graded as my time permits.

Assignment Extension, Late Submission Policy, Make up exams or absence

Attendance is essential to student success in this course.

Students are not required to provide medical notes in support of absences from class activities/requirements and from evaluations including final examinations. However, students need to report to the instructor within 48 hours after missing a class/quiz/test/assignment.

Assignment extensions make up exams or absence on required days will be given only with the professor's permission, and it will grant in cases of genuine need (sickness, death or funeral of a close relative). You will need to talk to me in person as soon as possible if you require an extension.

Late submissions will be marked, but do not expect a prompt return of the work. Late submission will incur a deduction of 5% for each weekday that the assignment is submitted after the deadline, unless an assignment extension has been permitted by me in advance of the deadline. Arrangements should be made with the professor in the case of missed exams.

Additional comments

If you have any conflict with these scheduled lecture exams, talk to the professor now (that is, at the beginning of the semester). Please don't wait until the exam is upon us to present your conflict.

Use of Third Party Detection and Submission Tools

Electronic detection tools may be used to screen assignments in cases of suspected plagiarism.

If you are struggling with coursework or any of life's other challenges please familiarize yourselves with the resources available in to you by visiting the Student Affairs website at <http://umanitoba.ca/student/index.html> The site contains helpful general information as well as links to webpages for the Aboriginal Student Centre, the International Centre for Students, the Academic Learning Centre, Student Advocacy & Accessibility, the Student Counselling & Career Centre, and University Health Service.

Important Dates

Drop a course without penalty is February 4, 2022.

Voluntary withdrawal date: April 25, 2022.

Class Schedule

This schedule is subject to change at the discretion of the instructor and/or based on the learning needs of the students but such changes are subject to Section 2.8 of the – [ROASS-Procedure](#)).

Lecture schedule			
Month	Day	Module	Topics, Readings, Assignments, Exams
January	24	Egg Industry	Introduction and Overview
	26		The Egg Industry Overview
	28		Shell Egg Formation and Structure
	31		Shell Egg Quality
February	02		Shell Egg quality II
	04		Shell Egg Processing I
	07		Shell Egg Processing II
	09		Egg handling, storage and safety
	11		The Meat industry overview
	14		First Midterm exam
	16		Slaughtering Operations
	18		Slaughtering Operations /Slaughtering By-products
	21-25		Louis Riel Day / Mid Term Break
	28		Slaughtering By-products
March	02	Meat Industry	Carcass evaluation
	04		Carcass grading systems
	07		Carcass fabrication
	09		Muscle chemistry pre- and post-mortem
	11		Properties of fresh meat
	14		Palatability of fresh meat I
	16		Palatability of fresh meat II
	18		Principles of meat processing I (Fresh processed meat products, Cured and smoked products, Emulsified products, Fermented products, Coating products, Restructured meat products)
	21		Principles of meat processing II
	23		Principles of meat processing III
	25		Meat cookery and cooked meat products IV
	28		Meat cookery and cooked meat products
	30		The Dairy Industry Overview
April	01	Dairy Industry	Second Midterm exam
	04		Physical-chemical characteristics and properties of milk
	06		General aspects of milk microbiology
	08		Principles of milk processing I

		(Milk for liquid consumption, Fermented dairy products, Concentrated milks, Cream/frozen dairy products)
	11	Principles of milk processing II
	13	Wrap-up
	15	No Lecture. Good Friday
	18	Third Midterm exam
	20	Wrap-up
	22	Wrap-up
	25	Last day of class for winter term.
April 26 to May 3		Winter Term examination period

Lab schedule			
Month	Day	Module	Topics
January	31	Egg Industry	Interior Egg Quality
	07		Egg Processing (Hard cook eggs, emulsifying and foam products)
February	21-25	Meat Industry	Louis Riel Day / Mid Term Break
	28		Carcass evaluation and fabrication
March	07		Fresh Meat Quality
	14		Meat processing I (Fresh processed meat products, Cured and smoked products)
	21		Meat Processing II (Emulsified products, Restructured meat products)
April	11	Dairy industry	Milk Processing I (Milk for liquid consumption, Fermented dairy products)
	18		Milk Processing II (Concentrated milks, Cream/frozen dairy products)

Students - UM COVID-19 -

The University of Manitoba (the “UM”) is committed to maintaining a safe learning environment for all students, faculty, and staff. Should campus operations change because of health concerns related to the COVID-19 pandemic or other campus-wide emergency, it is possible that this course will move to a fully remote delivery format. Should the instructor be required to stay at home for an extended period and an alternate instructor not be available, the course may move temporarily to a remote delivery format. In that instance, you may be provided with an asynchronous option to minimize the impact the change may have on your schedule.

PPE and Mask Wearing

In a face-to-face environment, our commitment to safety requires students to observe all physical distancing (2m) and personal protective equipment (PPE) guidelines set by the University (<https://umanitoba.ca/coronavirus>)

While on campus and in class, you must wear PPE (Personal Protective Equipment) as stipulated in current [University policies, procedures, and guidelines](#). Students who fail to comply are subject to disciplinary action in accordance with the [Student Discipline Bylaw](#) and the [Non-Academic Misconduct and Concerning Behaviour Procedure](#).

Medical-grade 3-ply masks are available at many locations on campus, including specific classroom locations, designated by your unit, the Elizabeth Dafoe Library (Fort Garry Campus) and the Brodie Centre main doors (Bannatyne Campus). Additional PPE, if necessary for a specific learning environment, will be provided to you by the teaching unit.

If you do not follow masking and other requirements you will be asked to leave the learning space and may only return to the class already in progress when you have complied with these requirements. Repeated issues will result in disciplinary action as previously noted.

Students should not eat or drink during class time.

Illness

Remember: **STAY HOME IF YOU HAVE SYMPTOMS OR ARE ILL.** If you become sick or are required to self-isolate you should notify your instructor by email so you can develop a plan to complete the course learning outcomes while you are absent.

If you have symptoms, do not come to campus or any UM facilities. Complete the [selfassessment](#)

on the Manitoba Public Health site and follow the guidelines, which may include booking a COVID-19 test.

What to do if you become ill while at UM:

1. Leave the classroom, lab or workspace immediately. Continue to wear your mask while leaving the premises and/or while waiting for transportation.
2. Perform hand hygiene (soap and water or hand sanitizer) and avoid contact with others, and minimize contact with the physical environment.
3. Once at home, complete the [MB self-assessment](#) and follow the directions that are provided.
4. Inform your supervisor(s), instructor(s) or, if in residence, the appropriate individual.
5. You must remain off campus and all UM facilities until cleared to return in accordance with self-assessment, testing results, or MB Health requirements.

Recommended transportation options (in order):

1. Drive yourself home.
2. Pick-up by family or friend – remember to keep your mask on and to distance as much as possible, and where possible, open a window to improve ventilation.
3. Pickup by taxi/Uber:
 - Remain masked and perform hand hygiene before entering the vehicle.
 - Avoid touching the inside of the vehicle
 - Keep your mask on for the duration of the ride
 - Where possible, open a window to improve ventilation.
4. Winnipeg Transit buses - Winnipeg Transit has indicated that individuals that are ill **must not use Transit.**