



**University of Manitoba
Faculty of Engineering
Department of Biosystems Engineering**

COURSE DETAILS 2023

Course Title & Number:	Management of By-product from Animal Production Systems, BIOE4590
Number of Credit Hours:	4
Class Times & Days of Week:	n/a
Lectures:	T.R. 8:30-9:45; E2-164 EITC
Tutorials:	M. 2:30-5:25; Human Ecology Rm 300
Pre-Requisites:	CIVL2790 or MECH 2262

Instructor Contact Information

Instructor Name:	Ying Chen
Preferred Form of Address:	Dr. Chen
Office Location:	E1 349, EITC
Office Hours or Availability:	Corresponding through emails anytime
Office Phone No.	
Email:	ying.chen@umanitoba.ca

TA Name:	TBA
Preferred Form of Address:	
Office Location:	
Office Hours or Availability:	
Email:	

Course Description

Topics covered include solid and liquid manure, manure characteristics, manure collection, storage, land application and utilization, biological treatment, design of equipment and facilities for manure handling. Environment issues, such as odour and water pollution associated with manure management will also be discussed.

General Course Information

This is a design elective course in the Biosystems Engineering program. This course is built upon on one of the two prerequisites mentioned above. Thus, it is intended that students take this course in the third year or fourth year.

Course Goals

This course provides an introduction to the principles in the design of equipment and facilities for handling by-products from livestock operations. The primary objectives are:

1. to increase the student's ability to apply fluid mechanics to engineering design of liquid waste handling equipment;
2. to discuss the design of collection and storage facilities, and field applicators of by-products;
3. to provide an introduction to physical and biological treatments of liquid and solid wastes.

Intended Learning Outcomes

On satisfactory completion of this course students will be able to:

- select the most suitable management system for a given livestock operation;
- evaluate the performance of equipment and facilities for handling by-products from livestock operations;
- design equipment and facilities for different applications.

Using Copyrighted Material

Please respect copyright. For more information, see the University's Copyright Office website.

Recording Class Lectures

Ying Chen 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 Ying Chen. Course materials (both paper and digital) are for the participant's private study and research.

References, Readings, Materials

Chapters 9 and 10. Agricultural Waste Management Field Handbook, United States Department of Agriculture, Natural Resources Conservation Service.

Course Technology

Laptops may be used during lectures, only if you are taking notes on the laptop. Student 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 student is on call (emergency) the student should switch his/her cell phone on vibrate mode and leave the classroom before using it.

Communication

Please note that all communication between myself and you as a student must comply with the electronic communication with student policy. You are required to obtain and use your U of M email account for all communication between yourself and the university.

Expectations: I Expect You To

To benefit the most from this class, you must be willing to attend all lecture videos and participate in tutorials. Deadlines are a reality in the world of engineering; we expect tutorial reports and assignments to be completed on time.

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, let other students copy from you, 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.

Students 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.

Course contents

Lecture and tutorial contents are as following:

Chapter	Class Content	Reading	Evaluation
1	Introduction	Yes	Assignments and Tutorial reports
2	Waste consistency	Yes	
3	Waste management functions	Yes	
4	Livestock management systems	Yes	
5	Production	Yes	
6	Collection	Yes	
7	Transfer	Yes	
8	Storage	Yes	
9	Treatment	Yes	
10	Utilisation	Yes	
11	Mortality management	Yes	
12	Safety	Yes	

Course Evaluation Methods

The grade for this course will be based on the following:

Due Date:	Assessment Tool	Value of Final Grade
To be announced by Univ.	Final Exam	50%
Jan. 23 or 30 , 2:30-5:15	Attendance of the tour to Campus Poultry Facility	1.5%
March 6 , 2:30-4:30	Midterm	30%
March 20 , 2:30-5:15	Attendance of the tour to Glenlea Swine and Dairy Facilities	1.5%
Due after one week	Assignments, reports, and others	17%

Grading Scale

The boundaries below represent a guide for the instructor and class alike. Provided that no individual student is disadvantaged, the instructor may vary any of these boundaries to ensure consistency of grading from year-to-year.

Letter	Mark
A+	90–100
A	85–89
B+	80–84
B	75–79
C+	65–74
C	60–64
F	< 50

Assignment Extension and Late Submission Policy

- There will be one week given to complete an assignment or a tutorial report, unless specified otherwise.
- Assignments and tutorial reports submitted after the due date will be docked 10% per school day for the first three days, and submission after three days will receive a zero grade.
- Missed assignments will receive a zero grade.
- Each student is allowed to have one late submission of assignments or tutorial reports (no later than 3 days from the due date).