

# **Discovery of Sustainable Cattle Systems**

## **ANS 4240C**

### **MEETING TIME & LOCATION:**

Lecture: Monday Period 8 (3:00 – 3:50 pm)

Lab: Monday or Wednesday Periods 9-10 (4:05-6:00 pm)

Dairy Science Room 201

### **INSTRUCTOR:**

Dr. Izabella Toledo- [izatol@ufl.edu](mailto:izatol@ufl.edu)

Office: Dairy Science Building, 204F

**CATALOG DESCRIPTION:** CREDIT: 2; Prerequisite: ANS 3006 Introduction to Animal Sciences. Multidisciplinary experiential learning course focused on development of sustainable practices through comprehension and critique of cattle production systems.

### **COURSE FORMAT:**

This is a two-credit course that will meet once per week for lecture, and once per week for discussion and hands-on learning projects. The course will encompass multiple aspects related to cattle systems, including agronomy, engineering, human and animal health and nutrition, sociology, and soil science. A key element of the course is the hands-on learning experience where students select a project to carry out on one of the UF beef or dairy units over the course of the semester. Students are expected to assess and critique current farming practices as they conduct their project and develop solutions that aim to improve sustainability.

### **COURSE LEARNING OBJECTIVES:**

Upon completion of the course, students will be able to:

- Identify factors that define sustainability of cattle production in three key areas: people, profit, and planet
- Compare and contrast current practices of cattle production systems
- Evaluate costs and benefits of common and alternative practices of cattle systems to society, environment and economics
- Develop novel approaches to improve sustainability of cattle production systems

The objectives will be accomplished through 1) discussion and assessing comprehension of lectures and assigned readings, 2) completing exercises and writing assignments that emphasize critical thinking skills and 3) conducting experiential learning projects that immerse the student in the farm experience and facilitate creative thinking.

**OFFICE HOURS:** Mondays 11:00am- 12:00pm or by appointment.

**REQUIRED TEXTBOOKS:** None.

**Recommended Reading:**

Sustainable Animal Agriculture, (2014) E. Krebeab, Editor, CABI, Boston, MA, ISBN: 1780640420

Everett, D.W. 2025. Dairy Foods: A Matrix for Human Health and Precision Nutrition-The Impact of the dairy food matrix on digestion and absorption. J. Dairy Sci. 108:3070-3087.

Moughan, P.J. 2021. Population protein intakes and food sustainability indices: The metrics matter. Global food Security. 29:100548.

Capper, J.L. and R.A. Cady. The effects of improved performance in the U.S. dairy cattle industry on environmental impacts between 2007 and 2017. J. Anim. Sci. 98:skz291.

White, R.R. Brady, M. Capper, J.L. McNamara, J.P. and K.A. Johnson. 2015. Cow-calf reproductive, genetic, and nutritional management to improve the sustainability of whole beef production systems. J. Anim. Sci. 93:3197-3211.

**COURSE SCHEDULE:** (1 hour lecture/discussion on Mondays, 3 hour lab various times and locations)

Week	Date	Topic	Recommended Reading	Assignments & Quizzes
1	8/25	Course introduction - Defining sustainability	Ch. 1 & 2, Sust Anim Ag	Essay 1
2	9/1	Labor Day, no lecture, Start group projects		
3	9/8	Role of Animal Sourced Foods in Human Societies	Moughan 2021 Everett 2024	Foods to meet dietary requirements
4	9/15	Life Cycle Assessments <b>Guest lecture</b>	Ch. 14, Sust Anim Ag	Quiz 1
5	9/22	Dairy Systems I	Capper 2020	
6	9/29	Dairy Systems II		Comparison of Dairy Systems
7	10/6	Beef Systems I <b>Guest lecture</b>		
8	10/13	Soil, water and manure management	Ch 17, Sust Anim Ag	
9	10/20	Forage management and utilization <b>Guest lecture</b>	Ch. 7&11, Sust Anim Ag	
10	10/27	Beef systems II <b>Guest lecture</b>		Beef Production Quiz 2

11	11/3	Animal Welfare <b>Guest lecture</b>	Ch. 4&13, Sust Anim Ag	
12	11/10	Antibiotics and hormones	Ch. 5 &18, Sust Anim Ag	Quiz 3
13	11/17	Future of Cattle Systems		Quiz 4
14	11/24	Thanksgiving Week, No class		
15	12/1	Group project reports		

**CRITICAL DATES:** Problem sets and essays are due one week after they are assigned. Quizzes and final project reports are due on the dates indicated in the schedule above.

### **EXPERIENTIAL LEARNING:**

A key component of the course is to learn through experiences. The farm tours and hands-on activities are designed to help the students learn about three key elements of sustainability: People, Profit and Planet. Students will be expected to document their learning experiences from the tours and activities in a journal (described below) and to use those learning experiences to evaluate current practices, identify opportunities to improve sustainability, and develop and evaluate approaches that maximize sustainability of cattle production given in the form of group project reports (described below).

Activities include:

- Study of labor management, includes: feeding and care of cattle, milking cows
- Study of cropping and grazing management systems
- Study of water and nutrient management
- Study of food processing and distribution of cattle products

### **GRADES AND GRADE POINTS**

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

Students will be graded on completion of:

- **Essays and problem sets** (60 points)
- **Experiential learning participation** (10 pts)
- **Group project reports** (30 pts)
- **Quizzes** (20 pts)
- **120 points total**

**Experiential learning and journal entries:** You are required to participate in on-farm activities over the course of the semester. These are intended to document your learning experiences from activities.

**Problem sets and essays:** Students will be required to complete essays or worksheets regarding the lecture topics and readings. For example, calculations for land and energy

requirements, production outputs, soil nutrient requirements (manure application) and estimates for global capacity.

**Group Projects:** Students will select an on-farm group project (from activities listed above) and work on the project for the semester. The purpose is for the student to gain a better understanding of the inputs of each system and to gain a connection with actual practices on farm. Students are expected to keep a journal of their on-farm experiences. Students also will need to do further study on the sustainability issues (societal, economic and environmental issues) regarding their on-farm activity. At the end of the semester, students will give a 10-minute presentation on their group project experiences. The report will be formed with input from journal entries, worksheets, class discussions, and further reading. The reports should include two key elements: 1) evaluation of current practices and 2) an approach, or evaluation of approaches, to maximize sustainability. Reports will be graded on coherence and clarity.

**Quizzes:** Students will be quizzed on assigned reading and lecture materials. There will be four quizzes worth five points each for a total of 20 points. Quizzes will be administered via Canvas.

**Students will receive a letter grade based on the following scale:**

Percentage	Grade
93 - 100	A
90 – 92.99	A-
87 – 89.99	B+
83 – 86.99	B
80 – 82.99	B-
77 – 79.99	C+
73 – 76.99	C
70 – 72.99	C-
67 – 69.99	D+
63 – 66.99	D
60 – 62.99	D-
< 60	E

The percentage is calculated from points earned out of a total of 160 possible points.

#### **ATTENDANCE AND MAKE-UP WORK:**

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>.

#### **IN-CLASS RECORDING:**

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

#### **ONLINE COURSE EVALUATION PROCESS:**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

#### **ACADEMIC HONESTY:**

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*” You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: “*On my honor, I have neither given nor received unauthorized aid in doing this assignment.*” It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

#### **SOFTWARE USE:**

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

### **SERVICES FOR STUDENTS WITH DISABILITIES:**

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, <https://disability.ufl.edu/>

### **CAMPUS HELPING RESOURCES:**

#### **Health and Wellness**

U Matter, We Care: If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu), 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.

University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.

GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website or call 352-273-4450.

#### **Academic Resources**

E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352-392-6420. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage for more information.

On-Line Students Complaints: View the Distance Learning Student Complaint Process.

### **ANIMAL CONTACT AND RISK:**

Direct animal contact is not required as part of this course, but the student's choice of project may require animal contact or work around farm equipment. **Students are required to complete Dairy Cattle Safety and Beef Cattle Safety courses (ANS 800 and ANS801 in MyUFL training) in the first week of class.** The farm environment presents health and physical risks from contact with farm animals and farm equipment. Any concerns or questions should be brought to the attention of the Instructor. Despite efforts to make students aware of potential risks, not all situations or events can be foreseen or prevented. The University of Florida is not liable for illness or injuries to students participating in coursework and, per University policy, students are required to purchase the Student Health Insurance Plan or comparable coverage. See: <http://healthcompliance.shcc.ufl.edu/insurance>