

**CAL POLY**

## ASCI 380 - *Ethica vitae in animalia scientia*

### “Ethical Technologies in Animal Science”

#### **Professors:**

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#### **Course Description:**

##### ASCI 380: Ethical Technology in Animal Science:

Creating genetically modified organisms (GMOs), questioning humane slaughter, and non-live cover breeding are only a few example points of ethics in the world of Animal Science. With such a broad subject, only a few specific topics will be discussed within this course on the ethics of technology in animal welfare.

In this class, we will outline different points of ethical view on these topics, all while examining the technologies involved within. Non-live cover breeding is the process of artificially inseminating a specified female with sperm previously collected from a specified male in order to gain desired traits in offspring. With basic technology used, the ethics do not particularly come into play for technology, but instead Genetically modified organisms are produced using the obvious technology. Certainly, students are aware of the controversies surrounding GMOs in non-animal food

products, but through in-class discussions and labs they will gain the proper knowledge on animal-based food products involving GMOs, and the ethics behind the technology used to create these foods. Animals, although not in the same way as humans, still give way to showing intelligence and emotional capacity. Within this course, students will learn about the evolution and development of varying animals, along with the basics of care and husbandry. The last half of this class will contain in depth discussions about the ethics of producers and consumerism, the topic of humane slaughter, and the ideals of vegetarianism and veganism.

While the general topic of ethical technologies in animal science holds enough information to be a year-long study, this course begins the conversation and presents the complexity of the subject. Students will leave this class with a finer understanding on how ethical technologies come into play within the animal science industry.

## **Rationale:**

Throughout a career in the field of animal science, students will be presented with many ethical dilemmas. Technology provides us with previously inconceivable advances and abilities, but it also leads us into an uncharted territory of ethical challenges. The choices that are made in the fields of veterinary science, animal production, and breeding technology will have ethical implications and consequences with the potential to set precedents and impact the field for years to come. Therefore, it is imperative that students pursuing a career in animal science understand how to navigate the ethical dilemmas that they will inevitably face in the future. This course uses real, current and pressing issues in the field of animal science to demonstrate how to approach concerns arising from rapidly expanding and emerging technologies. Students will learn to evaluate and weigh the consequences of the choices made concerning the utilization of new technologies in animal science, and can apply this method of understanding and critical thinking in their future careers. Without students willing to take the initiative to prepare themselves with a thorough comprehension of the potentially problematic implications of new technologies, the field of animal science could quickly devolve into a minefield of ethical dilemmas.

## Course Principles:

Students are expected to attend class on time and be ready to contribute to in-class discussions. Participation is necessary and will contribute to your overall grade. To obtain a more thorough understanding of this course, it is necessary to be engaged in the discussions and actively participate in the course work. Only then will students be able to actively engage with the material, and their participation will force them to create concepts and bring up evidence found from course materials.

In order to prepare students for future endeavors and professionalism, late work will only be accepted if notification is given well in advance. For each day after the due date, 5 percent of the assignment will be deducted from the 100 percent possible, turning a B- into a C+ and so forth. It is up to the students to keep track of their assignments and to check often announcements to see what is due for the week.

## Learning Goals:

- Be able to make a clear argument in favor of your stance on the topic of certain technologies in the field of animal science.
- Assess different course materials and make an educated review on a position.
- Effectively transmit important points from the course into the final debate.
- Determine the place of ethics in the field of animal production concerning the technologies used in animal slaughter, and how advances in the field may affect welfare concerns and farmers' methods of production.
- Understand the evolution and development of GMOs within animal production and animal-based products and the consequences for consumers.
- Display comprehension of the procedures involved in selective breeding processes, such as artificial insemination, and determine the ethical implications of these technologies and practices.
- Students should be able to show understanding of animals' emotional capacity and intellectual abilities, and how this information affects the ethics behind animal welfare and production.

**Course Schedule:**

<b>Week</b>	<b>Topics of Discussion</b>	<b>Class Activity</b>	<b>Assignments</b>
<b>1</b>	<ul style="list-style-type: none"> <li>- ASCI 380 course introduction and syllabus overview</li> <li>- Intro to non-live cover breeding technologies</li> <li>- Ethics of selective breeding</li> </ul>	<ul style="list-style-type: none"> <li>- Visit an animal unit on campus to witness A.I. (Artificial Insemination) process</li> </ul>	<ul style="list-style-type: none"> <li>- No formal assignments for first week of instruction</li> <li>- Begin reading for the next week</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>- Introduction to Genetically Modified Organisms (GMOs)</li> </ul>	<ul style="list-style-type: none"> <li>- Comparative analysis of organic vs. non-organic animal products</li> <li>- Reference article 1 for required reading (See Article list below).</li> </ul>	<ul style="list-style-type: none"> <li>- 350-450 word discussion comparing/contrasting products: price, taste, etc.</li> </ul>
<b>3</b>	<ul style="list-style-type: none"> <li>- Continuation of GMOs with in depth on tech and ethics</li> <li>- GMOs and their role in society</li> </ul>	<ul style="list-style-type: none"> <li>- Watch episode 3 of <i>Unnatural Selection</i> "Changing an Entire Species" (available on Netflix).</li> </ul>	<ul style="list-style-type: none"> <li>- Compare and contrast one livestock species from 100 years ago vs. today with pictures and a 350-450 word discussion.</li> </ul>
<b>4</b>	<ul style="list-style-type: none"> <li>- The evolution and development of animal intelligence and emotional capacity</li> </ul>	<ul style="list-style-type: none"> <li>- Take Midterm 1 in class</li> <li>- Lectures</li> <li>- Read course materials for discussion of topics in class (Week 4)</li> </ul>	<ul style="list-style-type: none"> <li>- Midterm 1: Non-live cover breeding technologies and ethics of selective breeding (Artificial</li> </ul>

	<ul style="list-style-type: none"> <li>- How captivity hinders the development or expression of emotions and intelligence.</li> </ul>		<p>insemination); the technology behind GMOs and their consequences for society</p>
<b>5</b>	<ul style="list-style-type: none"> <li>- Housing and care of animals kept in captivity</li> <li>- Standards and legislation in regards to care and maintenance of farm animals used for harvest</li> </ul>	<ul style="list-style-type: none"> <li>- Visit one animal unit on campus to explore the housing and care of livestock at Cal Poly</li> </ul>	<ul style="list-style-type: none"> <li>- List pros and cons of Cal Poly animal husbandry set up, explain in a paragraph what could be changed and identify potential welfare concerns</li> </ul>
<b>6</b>	<ul style="list-style-type: none"> <li>- Implications of demands for farm animal welfare on producers</li> </ul>	<ul style="list-style-type: none"> <li>- Random selection of debate topics, partners, and argument stance (for or against)</li> <li>- Take Midterm 2 in class.</li> </ul>	<ul style="list-style-type: none"> <li>- Midterm 2: Animal welfare implications, understanding animals' capacity for intelligence/suffering and the regulations in place to protect them</li> </ul>
<b>7</b>	<ul style="list-style-type: none"> <li>- Ethical animal slaughter and its implications on consumerism</li> <li>- We will send out an email of Giuseppe's bio, for students to read prior to the zoom meeting.</li> </ul>	<ul style="list-style-type: none"> <li>- Guest speaker Giuseppe Pulina, Professor of Animal Science at the Department of AGRARIA, teaches Ethics and sustainability of animal production (Giuseppe).</li> </ul>	<ul style="list-style-type: none"> <li>- Discussion based on guest speaker</li> <li>- Students are expected to ask questions at the end of the meeting.</li> </ul>

		- <a href="https://doi.org/10.1093/af/vfz052">https://doi.org/10.1093/af/vfz052</a>	
<b>8</b>	<ul style="list-style-type: none"> <li>- Discussion of meatless diets and vegetarian/vegan lifestyles and their views on the production of livestock</li> <li>- Impacts of vegetarianism/veganism on the animal industry and producers</li> <li>- See course materials for material to follow along in the lecture. (Week 8)</li> </ul>	<ul style="list-style-type: none"> <li>- Handouts will be given based on the course materials to follow along in class</li> <li>- Kahoot class activity</li> </ul>	<ul style="list-style-type: none"> <li>- Pick a vegetarian/vegan documentary on the livestock industry and make a discussion post based on the documentary</li> <li>- Examples: Cowspiracy, Dominion, Okja, etc...</li> </ul>
<b>9</b>	<ul style="list-style-type: none"> <li>- No new discussion topics</li> <li>- Review and in class discussion of material covered over the quarter.</li> </ul>	<ul style="list-style-type: none"> <li>- Take Midterm 3 in class</li> <li>- Work on Final Project/Debate with the class review in mind.</li> </ul>	<ul style="list-style-type: none"> <li>- Midterm 3: Ethical animal slaughter, animal production sustainability, and meatless/vegan diets.</li> </ul>
<b>10</b>	<ul style="list-style-type: none"> <li>- Work week for final debate</li> </ul>	<ul style="list-style-type: none"> <li>- Students will work in pairs assigned by the professors during the class period.</li> </ul>	<ul style="list-style-type: none"> <li>- Be prepared to present and submit your final project during our allotted final period.</li> </ul>
<b>11</b>	<ul style="list-style-type: none"> <li>- FINALS WEEK</li> </ul>	<ul style="list-style-type: none"> <li>- Present final debate in pairs during scheduled final day</li> </ul>	<ul style="list-style-type: none"> <li>- Final debate due</li> </ul>

### Required Texts:

#### Week 1:

No reading required prior to the first class meeting.

**Week 2:**

“Ethics Views on Animal Science and Animal Production”

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6952877/>

**Week 3:**

“GMOs in animal agriculture: time to consider both costs and benefits in regulatory evaluations”

<https://jasbsci.biomedcentral.com/articles/10.1186/2049-1891-4-37>

“Responsible Innovation: Bringing together Technology Assessment, Applied Ethics, and STS research”

<https://run.unl.pt/bitstream/10362/7944/1/Grunwald9-31.pdf>

**Week 4:**

*The Animals' Agenda: Freedom, Compassion, and Coexistence in the Human Age*  
(ISBN-13 : 978-0807045206)

**Week 5:**

*The Well-Being of Farm Animals: Challenges and Solutions*

(ISBN-13: 978-0813804736)

Read Preface, Chapter 1, and Chapter 3

**Week 6:**

“Demand for farm animal welfare and producer implications: Results from a field experiment in Michigan”

<https://reader.elsevier.com/reader/sd/pii/S0306919217303780?token=DA4C09A1B6B2CC51C4F4ED52D3B87E806E91062B23E327B203256DA4E6A3D414639AA91586B4FF0FFE8E08FAA6ED51E0>

**Week 7:**

Giuseppe Pulina, Ethical meat: respect for farm animals, *Animal Frontiers*,  
Volume 10, Issue 1, January 2020, Pages 34–38,  
<https://doi.org/10.1093/af/vfz052>

*The Well-Being of Farm Animals: Challenges and Solutions*

(ISBN-13: 978-0813804736)

Read Chapters 15 and 16.

**Week 8:**

“Community As More Than Human: Vegetarianism, Ethics and Aporetic Decision”

[https://www.yorku.ca/etopia/docs/inhuman2008/J\\_Carey.pdf](https://www.yorku.ca/etopia/docs/inhuman2008/J_Carey.pdf)

“The Moral Argument About Vegetarianism”

[https://doi.org/10.1016/0304-3762\(82\)90222-X](https://doi.org/10.1016/0304-3762(82)90222-X)

**Week 9:**

No class reading required; do independent research for the final project debate proposal with your group.

## Required Materials:

1. 3-Ring Binder:
  - a. 2 inch rings (To sort course materials and organize notes)
2. The textbook for this class is *Animals as Biotechnology: Ethics, Sustainability and Critical Animal Studies* by Richard Twine. For the convenience and benefit of students, we will utilize the preview version of this book that has some slight page omissions, which can be found here:  
<https://books.google.com/books?hl=en&lr=&id=C6osZJLbJ3cC&oi=fnd&pg=PR5&dq=animal+science+ethics+technology&ots=2XNhqK-yQB&sig=JkldSTzKE-cGFu0ec4djcYm3l28#v=onepage&q&f=false>
3. Students will be required to access the articles, papers and novels outlined and linked beneath the course schedule on pages 4-5 of this syllabus.
4. Computer or easy access to one:
  - a. Laptops can be checked out from the school library
5. Access to Scientific Journals:
  - a. Journal of Food Science & Food Technology
  - b. American Chemical Society (ACS)
  - c. Journal of Animal Science
  - d. American Society of Animal Science (ASAS)
  - e. Poultry Science - Poultry Science Association (PSA)



## Class Expectations and Overview:

Students will be expected to attend class and actively participate in weekly class discussions on various topics of animal welfare and ethics in relation to technology. Students should come to class prepared and should have read the material listed for that week **before** class commences. If you fail to do so, you will be unprepared to have an informed in-class discussion on that topic and you may be unable to complete the assignments for that week.

## Grading:

- 3 Midterms (Worth 30%)
  - Midterms are not cumulative, and will be on material covered after each subsequent midterm.
  - Students will have the entire period to complete the midterms. Midterms will consist of true/false, multiple choice, and free response open-ended questions.
- Class Participation/attendance (Worth 5%)
  - Attendance is coming to each zoom meeting while participation is engaging with the class, which will be graded based on how often students ask or answer questions in class or on the class questions forum and how often they answer questionnaires that are put out during class
- Lab/activity portion (Worth 15%)
  - Students will be expected to answer the in-class questionnaires that we might present during zoom meetings. No true lab reports will be turned in, but the bulk of the 15% is based on just showing up to the proper lab section.
- Final Debate (Worth 25%)
  - The final debate is the biggest part of the class. Here the students will show what they know about current issues with the ethics of technology in Animal Science by preparing a debate speech that either is for or against a topic. Students will be in groups of four, two for and two against the topic

they are presented in order to cut down on the number of repeats of topics.

- Students will be given a topic that has been discussed in class and will be given a time frame to present their side, listen to the opposite side, and come up with a rebuttal. Grading will be based on how well the student knows the material and how solid their rebuttal is. A grading rubric and more rules will be introduced in week 6 with the debate happening in week 11 during our final period.
- In addition to the in class presentation, students must turn in an outline detailing their argument stance, strategy and approach. A bibliography must accompany this outline citing all sources.
- Homework (Worth 25%)
  - Ranges from take home worksheets to posting in the discussion forum. Homework assignments for each week are outlined in the class schedule. Worksheets will have instructions posted on them and are composed of 4-5 questions that require a short response answer for full credit. Discussion posts will be based off of the lectures for that week. The posts should be 350-450 words in length, there is no penalty for exceeding this length but being 50 words or more under the requirement will result in a half score for that week's discussion grade. Discussion posts will also be accompanied by a response post where students will reply to a peer's submission for that week. Responses should be roughly the same length as the original post but there will be no penalty for not matching the same character limit. We want students to be able to simulate professional level conversations with their peers, but we do understand that sometimes it is hard to respond to a topic one might have little to no prior knowledge on.
  - Students will advance their ASCI 380 knowledge by performing hands-on experiments and using lab materials to complete lab assignments. Safety in the lab room is our number one priority, and face masks must be worn at all times, no exceptions. Goggles and a clean lab coat will be provided to the students for each lab session. Students are expected to maintain a

lab notebook written in pen, showing calculations and experiments performed during that lab period. Labs will consist of experiments done at various locations around campus (see map for details).

### **Major Assignments/Assessments:**

- Debate: Each student will be given a partner with whom they will research a given topic and stance to prepare a 4-5 minute opening speech/presentation on the ethics and technology used. Various topics include humane slaughter, ethical tech for harvest, etc...
- Midterms: Midterms will be on material covered after each subsequent midterm. Students will have the entire period to complete the midterms. Midterms will consist of true/false, multiple choice, and free response open-ended questions.
- Discussions: Typically 350-450 words in length, students are required to respond to discussion prompts in a clear and collegial manner. They will back up evidence through readings from the current week, and any other course materials supplied through the week, such as guest speakers or in-class activities.
- In-class Activities/Labs: Students will be required to participate in in-class activities and discussions, and this participation will contribute to one's final grade in this class.
- Weekly Homework Assignments: Students will be expected to complete the corresponding homework assignments given each week in class and described on the schedule for each week. The completion of these weekly assignments is vital to a thorough comprehension of the courses' material.

### **Academic Dishonesty:**

Any form of cheating or plagiarism will not be tolerated and if found, will be prosecuted to the full extent of Cal Poly's academic senate.

### Works Cited:

Giuseppe Pulina, Ethical meat: respect for farm animals, *Animal Frontiers*, Volume 10, Issue 1, January 2020, Pages 34–38, <https://doi.org/10.1093/af/vfz052>

Ortega, David L., and Christopher A. Wolf. "Demand For Farm Animal Welfare And Producer Implications: Results From A Field Experiment In Michigan". *Food Policy*, vol 74, 2018, pp. 74-81. *Elsevier BV*, doi:10.1016/j.foodpol.2017.11.006. Accessed 5 Nov 2020.