AGRI 432: Holistic Management

Instructor:
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Organic Dairy Education & Research Program  
Plumas Hall, 209 Certified Holistic Management Instructor  
Office phone: 530-898-6280

Class Schedule: Fall 2017 - 3 unit lecture

Office Hours: By Appointment

Required Reading: Select reading assignments available on-line.

Course Offering: 3 unit lecture with field trips to the University Farm; Meridian Road, and the Guidici Ranch in Palermo, CA. Car pooling may be required.

AGRI 432 is an upper division elective course that fulfills the following:
- Upper division elective in all majors within the College
- Agro-Ecology credit for the ANSC & AGED degree program

Course Content: AGRI 432 is a systems-based course that integrates concepts in soils, agronomy, rangeland sciences, livestock management, grazing practices and ecological cycles into an agricultural land management plan. Students learn to make decisions from the basis of a holistic context that has been generated after careful assessment of the resource to be managed. Students will discover and discuss various tools that may be used to achieve their stated holistic context including cover cropping, rangeland seeding, no-till soil management practices, composting as soil enhancement tool, value added production systems, rotational grazing, and effective use of livestock as a tool to improve riparian corridors and reduce erosion. Students will determine the best land management approach for a given situation to achieve their stated goals, while assessing the financial and ecological impacts through an economic analysis and land ecological monitoring program.

Writing Component: The course requires the completion of a Holistic Management Plan to synthesize concepts, support active learning, and provide students with an opportunity to improve their scientific writing skills. The assignment will include: 1) a basic description of the land/livestock resource base; 2) establish a holistic context based on existing conditions; 3) apply appropriate management technologies to achieve stated goals and objectives for the operation; 4) analyze the adaptations for financial feasible; and 5) devise an ecological and financial monitoring program to assess program level success. All applications require scientific validation from peer reviewed journal articles. The writing format will be APA. Students will prepare a draft plan for peer review; a revised draft for instructor review; and a final paper assignment.

Course Goals:
- Synthesize and integrate agricultural disciplines including soil science; crop production; livestock management; with ecological principles and financial analysis
- Learn how ecological processes are impacted by agricultural practices
• Develop writing skills and oral communication
• Practice the basic principles of Holistic Management through hands-on applications:
  o Establish a holistic context for a farming and/or livestock operation
  o Inventory ecosystem processes for existing management and land conditions
  o Understand the effects of land management tools and their potential impact on extensive range, riparian areas, seasonal wetlands or farmland.
  o Establish a land and/or livestock management plan appropriate for a particular HM context.
  o Create an integrated cropping system/livestock grazing program
  o Development of a holistic financial plan to support the context
  o Establish a biological monitoring program
  o Applications of the core components of the holistic decision making paradigm in the “Feedback loop” including implement/assess/review/make appropriate change

Course Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tr>
<td>10 quizzes (50 pts each)</td>
<td>500 pts</td>
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<tr>
<td>Designing a Holistic Management Plan</td>
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<tr>
<td>Draft #1 – Peer review</td>
<td>50 pts</td>
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<tr>
<td>Draft #2 – Instructor review</td>
<td>50 pts</td>
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<tr>
<td>Final paper</td>
<td>50 pts</td>
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<tr>
<td>Oral Presentation</td>
<td>50 pts</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>700 pts</strong></td>
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Grade Scale: 90% = A; 80% = B; 70% = C; 60% = D; <60 = F

University Policies and Campus Resources

Academic integrity
Students are expected to be familiar with the University’s Academic Integrity Policy. Your own commitment to learning, as evidenced by your enrollment at California State University, Chico, and the University’s Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Judicial Affairs. The policy on academic integrity and other resources related to student conduct can be found at: http://www.csuchico.edu/sjd/integrity.shtml.

Campus Policy in Compliance with the American Disabilities Act
If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Students with disabilities requesting accommodations must register with the DSS Office (Disability Support Services) to establish a record of their disability. If you have a disability that requires special accommodations, you must contact a counselor at Disability Support Services, Student Services Center Rm 170 (530) 898-5959. Special accommodations for exams require ample notice to the testing office and must be submitted to the instructor well in advance of the exam date.

IT Support Services
Computer labs for student use are located on the first and fourth floor of the Meriam Library, Room 116 and 450, Tehama Hall Room 131, and the Bell Memorial Union (BMU) basement. You
can get help using your computer from IT Support Services; contact them through their website, 
http://www.csuchico.edu/itss. Additional labs may be available to students in your department 
or college.

Student Services
Student services are designed to assist students in the development of their full academic 
potential and to motivate them to become self-directed learners. Students can find support for 
services such as skills assessment, individual or group tutorials, subject advising, learning 
assistance, summer academic preparation and basic skills development. Student services 
information can be found at: http://www.csuchico.edu/current-students.

Americans with Disabilities Act
If you need course adaptations or accommodations because of a disability or chronic illness, or if 
you need to make special arrangements in case the building must be evacuated, please make an 
appointment with me as soon as possible, or see me during office hours. Please also contact 
Accessibility Resource Center (ARC) as they are the designated department responsible for 
approving and coordinating reasonable accommodations and services for students with 
disabilities. ARC will help you understand your rights and responsibilities under the Americans 
with Disabilities Act and provide you further assistance with requesting and arranging 
accommodations.

Accessibility Resource Center
http://www.csuchico.edu/arc
530-898-5959
Student Services Center 170
arcdept@csuchico.edu

Course Management/Policies
Students are expected to read and adhere to all course policies found the College of Agriculture 
Common Course Policies found at: 
Course Content:

Module 1: Reviewing concepts
- Key insights: the Holistic Perspective
- Viewing environments in terms of brittleness scales and soil quality
- Predator Prey connection
- Essential impacts of “timing”
- Ecological Systems

Module 2: Core Components of Holistic Decision Making
- Describing what you are managing
- Describing what you want
- Establishing a Holistic Context
- Filtering out data that distracts you from your context
- Establishing a monitoring program to stay on the right track

Module 3: Ecological systems and the language of the land (2 weeks)
Quiz 1 (Module 1&2)
- Nutrient cycles
- Energy cycles
- Water cycles
- Impacts on soil and water quality

Module 4: Holistic Ecological Monitoring (2 weeks)
Quiz 2 (Module 3)
- Maintaining photo records
- Soil surface evaluations
- Brittleness factor
- Four ecosystem processes
  - Community dynamics – assess succession
  - Water cycle - assessing effective water cycle
  - Permeability and effective rain
  - Plant habitat
  - Mineral cycle – assessment
  - Energy flow – assessment
  - Species identification - reading plant forms (overgrazed/over rested)
  - Living organisms

Module 5: Land Management Tools to Regenerate Landscapes (2 weeks)
Quiz 3 (Module 4)
- Building Soil Organic Matter (SOM)
  - Cover cropping and rotational cropping systems
  - No till vs regular tillage on soil erosion and soil properties
  - Rangeland seeding practices - impacts on SOM
  - Perennial vs Annual grasslands - impacts on SOM
  - Aeration and water infiltration technology
- Community diversity influences on ecosystem services
o Roll of hedgerows in providing essential habitat
o Monocultures vs poly-cultures on soil microbiology, pollinator species and bird communities

- The power of livestock to regenerate riparian zones
- Getting animals to the right place at the right time for the right reasons
- How to nurture and sustain the land

Module 6: Livestock Management – Holistic planned grazing (2 weeks)

Quiz 4 (Module 5)
- Why plan?
- Measuring forage utilization
- Grazing, overgrazing, and growth rates
- Grazing periods and recovery periods
- Effect of timing
- Effect of stock density and animal nutrition
- Determining correct stocking rates
- Critical non-growing and slow growing seasons
- Creating the herd effect
- Matching animal cycles to land cycles

Module 7: Land Management - Holistic land planning (2 weeks)

Quiz 5 (Module 6)
- Mapping your future landscape
- Identify management factors
- List your infrastructure needs and circulate to your influencers
- Map existing developments
- Create overlays of potential development projects
- Establishing internal fencing infrastructures based on land features
- Water establishment
  o Designing features to capture more rainfall
  o Establishing contours for permaculture applications
  o Building stock ponds and swales
  o Stock wells, water lines and solar pumps for remote locations

Module 8: Holistic Financial Planning (two weeks)

Quiz 6 (Module 7)
- Using your goals - creating the annual holistic financial plan
- Identification of your financial weak link
- Investing soundly
- Marginal reaction – get the biggest bang for the buck
- Gross Profit Analysis
- Comparing scenarios
- Comparing the use of assets
- Gross profit per unit
- Management tips and good ideas
Module 9: Implementation and Assessment
Quiz 7 (Module 8)
- Pulling it all together
- Testing your decisions
- Establishing your weak links
- Marginal reaction
- Gross profit analysis
- Summarize and thinking deep thoughts

Module 10: Holistic Management Plans Presented to Class
Quiz 8 (Module 9)
- Homework: Turn in Holistic Management Plan Paper
- HM Presentations of your operational plan.