

SYLLABUS

Heritage Farming SUST 384

Instructor: Charles Havlik **Email:** chavlik@nmsu.edu
Office Location: Casteretter, 163B **Office Phone:** (505) 277-3431 or (505) 864-7340
Office Hours: By Appointment **Course Credits:** 3
Class Meeting Day(s): TTH **Class Time:** 8:00 – 9:15 AM
Class Location / Room: Mitchell Hall Rm. 106
Term / Semester: Spring 2018

Course Description

Contextual relationships strengthen links among the learning environments (home, school, community) and reinforce the meaning of education. As a contextual relationship, agriculture acts as a unifying theme for new curricula and adds meaning to what students learn in class. Implemented in educational programs, agriculture helps to build capacity for life-long learning in individuals, develops knowledge, skills and attitudes in people, and contributes to the general development of community.

At the UNM main campus, The Lobo Gardens course began in 2010 and its inception marked the culmination of several years of focused efforts by UNM students, staff, and faculty to make community food gardens on campus a reality. The vision had been, and continues to be, to create outdoor learning laboratories where multiple departments, programs, and disciplines create, maintain, and use gardens to teach hands-on topics through service learning. Heritage Farming aims to provide students from different degree programs with a full semester class to explore in-depth the history of agriculture in the Southwest and the influence of Spanish/Mediterranean agriculture in contemporary agriculture of the area. This class will provide a theoretical background focusing on the history of agriculture in New Mexico and the Southwest. The instructor will assign culturally sensible readings to enhance the understanding of the students regarding Native Americans relations with nature and the environment. Heritage farming methods will be studied. We will read about the environment and its influence in early and modern agriculture in NM. Students will learn about the importance of heirloom crops and the history and value of Native American and heritage crops.

This is a theoretical class balanced with a hands-on component. The experiential component of the course will provide students with the basis of how to develop a garden in the area. Students will invest 33% of the class time in the gardens and field trips. Most of gardening experience will take place in the first 8 weeks of the semester. Mondays will be used to teach the theoretical component and Wednesday and Fridays we will meet at the Lobo Gardens site. In the practicum component, sustainable agricultural practices for the high elevation desert will be implemented (e.g. the use of compost, mulching, raised beds, etc.). In addition, heritage crops will be grown and a seed saving/sharing program will be implemented.

Course Objectives and Student Learning Outcomes

Sustainability is a nationally and internationally recognized interdisciplinary field of vital importance. Sustainability promotes environmental health and restoration, social equity, and

economic vitality. In light of unprecedented environmental degradation, social instability, and economic uncertainties in today's world, the sustainability minor degree cultivates the complex knowledge and skills needed to secure a healthy future for all. By teaching sustainable agriculture with a historical and cultural approach we will educate the students on the importance and feasibility of growing food in the area; the richness of heritage farming and crops developed by our forefathers, and the need to rescue and conserve this knowledge. At the end of the class they will be expected to: (1) verbalize the factual history of pre-Columbian agriculture in the Southwest and the influence of European agriculture in the area, (2) demonstrate competency for building a garden from scratch considering the unique environmental characteristics of the high desert, and (3) use electronic search tools to seek peer-reviewed literature (both theoretical and practical) to support the areas covered in the class. Students will bring judgment to bear on their use of books, scientific periodicals, and popular material including magazines and newspapers.

Textbooks and Supplies

1. **Book:** William W. Dunmire. 2004. Gardens of New Spain: How Mediterranean Plants and Foods Changed America. University of Texas Press.
2. **Reading assignments:** This class will provide a series of readings to support the content of the main chapter from the book. The readings can be downloaded from any computer at UNM campus (with library access). In addition, they can be found with Google scholar.

Evaluation/Grading Methods

1. **Reading Journal:** Expect to turn in a reading journal every Tuesday. Each Journal will cover one of your readings for the week, and serves as your reading review before lecture and discussion. A sheet for the journal will be provided to you.
2. **Class engagement:**
 - a. **Attendance:**
 - **Lecture:** Students must be fully engaged in class and their attendance to the lectures will represent 5% of the final grade.
3. **Practicum engagement:**
 - a. **Garden preparation, weed removal, soil preparation, and composting.** Students will be expected to work in the gardens and collaborate with the activities listed above. This will represent 11 % of the final grade.
 - b. **Crop management.** During the practicum, the professor will provide students with information and will engage in discussion related to sustainable agricultural practices. Every student should be responsible for a particular crop and he/she will learn how to take care of it as well as, share with the classmates their experiences. As represented in their posters. This will represent 22 % of the final grade.

- c. **Field study reflection papers:** Two 1½ to 2 page single-spaced typed papers of your reflections of either a guest speaker or a field trip. Each paper is expected to be emailed to the instructor. Field study reports will represent 7 % of the final grade.
 - d. **Volunteer work:** Each student will be expected to put in 10 hours in the semester in volunteer work. As of this moment that is still being determined. More details to come.
4. **Short papers and presentations:** Students will be required to write essays (described below) that will be presented and discussed in class to enrich students and others' participatory learning.
- **RAFT Redlist poster and presentation:** Students will be expected to pick an endangered food from the Slow Food Ark of Taste (also referred to as The RAFT Redlist). A rubric will be provided. The students will have a short presentation and the posters will be posted in the Sustainabilities Department for other people to enjoy.
5. **Final Project Reflection Paper:** The instructor will provide the students a series of potential topics (e.g. rain harvesting, urban biodiversity, vertical gardening, waffle garden techniques, etc.) The student will research and write a 4-page (single-spaced) essay. First-person writing voice is encouraged as well as engaging concepts from class readings and field trips.
6. **Final Project Presentations:** During the last two course meetings, students will present their final paper (no longer than 7 minutes along with a Powerpoint presentation).

Grading

The grading criteria: Originality/innovation/creativity are not just expected but encouraged. Students must show a depth of critical thinking; and research must be accurate and analytical.

A. Practicum and physical activities and work:

<i>Garden preparation work</i>	110 points	(11%)
<i>Crop management work</i>	220 points	(22%)

B. Lecture:

Reading journals	100 points	(10%)
Midterm I	100 points	(10%)
Midterm II	100 points	(10%)
Field study reflection paper	70 points	(7%)
RAFT Poster and Presentation	50 points	(5%)
Final project presentations	50 points	(5%)
Final project reflection paper	50 points	(5%)
Class attendance – lecture	50 points	(5%)
Final exam	100 points	(10%)

*For graduate students, the above requirements will count as 85% of the course grade. The additional 15 % will be earned by writing a research paper. The document will be at least 5 single-spaced pages not including references. The topic of the paper will be discussed with the

professor to complement the student's interests.

Final Grade: **100%**

Your final grade is on a strict percentage basis based on your points earned:

900-1,000 Excellent	97-100% = A+
	93-96.9% = A
	90-92.9% = A-
800-899 Good	87-89.9% = B+
	83-86.9% = B
	80-82.9% = B-
700-799 Competent	77-79.9% = C+
	73-76.9% = C
	70-72.9% = C-
600-699 Below Average	67-69.9% = D+
	63-66.9% = D
	60-62.9% = D-
0-599 Failing	BELOW 60% = F

A = Work meets all requirements of the assignment and shows a superior understanding of the material. Excellent work is creative in presentation, and in the application and evaluation of concepts. 'A' assignments are precise, well thought out, well organized, and have no stylistic errors.

B = Work meets all requirements of the assignment and shows a valid understanding of the material. Good work exceeds assignment content expectations and has few stylistic errors. 'B' assignments are clear in presentation and in the application and evaluation of concepts. 'B' assignments are accurate and thought out.

C = Work simply meets the requirements of the assignment. Average work meets the minimum assignment content expectations and has some stylistic errors. 'C' assignments show an understanding of the material and in general how to apply and evaluate it. Demonstrates basic competency in organization, spelling, grammar, and structure is simply meeting the average expectations of a college student.

D = Work does not meet the minimum assignment expectations for content and has several stylistic errors. Below average work miss portions of requirements and shows the student has failed to grasp or utilize concepts. 'D' assignments do not show competency in basic fundamentals expected of college students.

F = Work does not reflect the content expectations and is plagued by numerous stylistic errors. Poor work indicates a student has no grasp of the material or does not care.

Attendance Policy

Late work & absences: Late work will not be accepted. Turn in your work in a timely manner by deadline. In addition, you will *not* have a chance to rewrite your work after it has been turned in. However, you are encouraged to meet with the professor in advance to discuss and ask questions about your assignments in progress. If you know

you have a UNM institutionally excused absence coming up, you must turn in your assignments in advance or by deadline. Any excused absence must be documented, and you must get this documentation to the professor if you want to receive credit for your work. As this is a 3-credit class that meets only 3 days per week, missing a class will affect your grade in terms of participation, quizzes, etc. Again, late work will be not accepted.

Accommodation Statement

ADA accessibility: Qualified students with disabilities needing appropriate academic adjustments should contact Accessibility Services (277-3506) and inform the professor as soon as possible to ensure your needs are met in a timely manner. Accessibility Services (Mesa Vista Hall 2021, 277-3506) provides academic support to students who have disabilities. If you think you need alternative accessible formats for undertaking and completing coursework, you should contact this service right away to assure your needs are met in a timely manner. If you need local assistance in contacting Accessibility Services, see the Bachelor and Graduate Programs office.

Academic Integrity

The University of New Mexico believes that academic honesty is a foundation principle for personal and academic development. All University policies regarding academic honesty apply to this course. Academic dishonesty includes, but is not limited to, cheating or copying, plagiarism (claiming credit for the words or works of another from any type of source such as print, Internet or electronic database, or failing to cite the source), fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students.

The University's full statement on academic honesty and the consequences for failure to comply is available in the college catalog and in the *Pathfinder*.

Cell Phones and Technology

As a matter of courtesy, please turn off cell phones, pagers, and other communication and entertainment devices prior to the beginning of class. Notify me in advance if you are monitoring an emergency, for which cell phone ringers should be switched to vibrate.

Library and Tutorial Services

UNM-Main campus provides many library services and some tutorial services for distance students. For library services, go to <http://www.unm.edu/libraries> to link to a specific library or to contact a librarian. For tutorial services, go to <http://caps.unm.edu/online> to explore UNM's online services.

Others

Email responsibility: Check your UNM email account regularly, as we will use this account to keep in touch with you about course requirements or updates. If you use

another email address, please set up your UNM account to forward your UNM account email to that address.

References: Cite and reference all sources you refer to in your written work and do so using American Society of Horticultural Sciences (ASHS) style.

Lactation policy: In the event that you are a mother who breastfeeds during the course of this class, accommodations will be made as necessary to allow you to pump or breastfeed during the scheduled class periods without any penalty to your grade. You are encouraged to contact me directly to make the necessary arrangements.

SCHEDULE OF ACTIVITIES

The Schedule of Activities is subject to change. Minor changes will be announced in class, major ones provided in writing.

Weekly Schedule of Topics, Readings, Assignments, Tests and other Activities

WEEK 1: January 16th and 18th

“Class introduction, expectations, and Sustainability”

Introductory class: history and expectations

- Who are we and what do we bring to this project?
- Why it important to have a cultural, historical perspective on a hands-on gardening class.
- How do these types of projects can help the community and us as future professionals.
- Syllabus discussion and textbook
- Sustainability discussion

Readings:

- 1) Dunmire, William. 2004. Gardens of New Spain: How Mediterranean plants and foods changed America. The University of Texas Press.
 - Chapter 1: Pre-Columbian Spain
- 2) Caduto, M.J. and J. Bruchac. 1996. Native American Gardening. Fulcrum Publishing. Golden, CO.
 - Foreword by Gary Paul Nabhan
 - Introduction: Native Gardens and the Circle of Life

Lecture: Introduction, Nikolay Vavilov’s Centers of Origin, The Columbian Exchange, Renewing America’s Food Traditions and What is New Mexico?

Field classes: Garden lay out, agricultural structures (e.g. raised beds, trellis, irrigation systems), season crops.

WEEK 2: January 23rd and 25th

“Native Americans and their environment”

Readings:

- 1) Dunmire, William. 2004. Gardens of New Spain: How Mediterranean plants and foods changed America. The University of Texas Press.
 - Chapter 2: Mexico before Columbus
- 2) Buchanan, Carol. 1997. Brother Crown, Sister Corn: Traditional American Indian Gardening. Ten Speed Press. Berkeley, CA.
 - Chapter 1: The American Indian way of Gardening.

Online:

- 1) Lewis, David R. 1995. Native Americans and the Environment: A Survey of Twentieth-Century Issues. University of Nebraska Press. American Indian Quarterly 19 (3): 423-450
- 2) Salisbury, Neal. 1996. The Indians' Old World: Native Americans and the coming of Europeans. The William and Mary Quarterly 53 (3): 435 – 458

Field classes: Biodiversity in the garden, the edible forest, rain harvesting.

WEEK 3: January 20th and February 1st

“Highland desert agriculture, the environment and the constraints”

Readings:

- 1) Murdock, Margo. 2010. Down to Earth: A Gardener’s Guide to the Albuquerque Area. 2nd Ed. Albuquerque Area Extension Master Gardeners, Bernalillo County Cooperative Extension Service.
 - Highlights of High Desert Gardening (pages 2-3)
 - Climate in the garden (pages 4-5)

Online:

- 1) Dickerson, George W. 2003. Growing zones, recommended crop varieties, planting, and harvesting information for home vegetable gardens in New Mexico. NMSU Cooperative of Extension 5C
- 2) Benson, Larry V. et al. 2007. Possible impacts of early-11th-, middle-12th, and late-13th-century droughts on western Native Americans and the Mississippian Cahokians. Quaternary Science Reviews 26 (3-4): 336-350

Field classes: crop selection and planting.

WEEK 4: February 6th (Mr. Havlik @NM Chile Pepper Conference) and February 8th

“Highland desert agriculture: Its history, the environment and the constraints”

FIRST PAPER DUE: Friday

Guest Speaker: Richard Bernard: Seed Collections in Northern New Mexico February 8th, 2014

Readings:

- 1) Dunmire, William. 2004. Gardens of New Spain: How Mediterranean plants and foods changed America. The University of Texas Press.
 - Chapter 3: Pre-Columbian Agriculture in the American Southwest
- 2) Caduto, M.J. and J. Bruchac. 1996. Native American Gardening. Fulcrum Publishing. Golden, CO.

- Keeping a garden Journal and Choosing a site (pages 29 – 36)

Online:

- 1) Doolittle, William E. 1992. Agriculture in North America on the Eve of Contact: A Reassessment. *Annals of the Association of American Geographers* 82(3): 386-401
Field classes: Soil preparation, weed identification.

Field studies TBA: Friday, 8 AM – Potential trip to Chaco Canyon

WEEK 5: February 13th and 15

February 16th and 17th is the New Mexico Organic Farming Conference

“New crops reach the new world & Soils in the High Desert”

FIRST MIDTERM: Friday. The exam will cover all the material reviewed until the end of week 4.

Readings:

- 1) Caduto, M.J. and J. Bruchac. 1996. *Native American Gardening*. Fulcrum Publishing. Golden, CO.
 - Testing, preparing and maintaining the soil (pages 36 – 40)
- 2) Murdock, Margo. 2010. *Down to Earth: A Gardener’s Guide to the Albuquerque Area*. 2nd Ed. Albuquerque Area Extension Master Gardeners, Bernalillo County Cooperative Extension Service.
 - Soils, amendments, fertilizers (pages 2-3)

Field classes: compost, vermicomposting concepts and fertility discussion.

WEEK 6: February 20th and 22nd

Guest Speaker: Dave DeWitt: Precious Cargo Synopsis

“European Agriculture reaches the Americas & soil improvement”

Readings:

- 1) Dunmire, William. 2004. *Gardens of New Spain: How Mediterranean plants and foods changed America*. The University of Texas Press.
 - Chapter 4: European Plant ways to the New World: 1492 - 1521
- 2) Murdock, Margo. 2010. *Down to Earth: A Gardener’s Guide to the Albuquerque Area*. 2nd Ed. Albuquerque Area Extension Master Gardeners, Bernalillo County Cooperative Extension Service.
 - Mulches (pages 18 - 23)

Online:

- 1) Homburg, J.A., J.A. Sandor, and J.B. Norton. 2005. Anthropogenic influences on Zuni Agricultural Soils. *Geoarchaeology* 20 (7): 661 – 693.

Field studies TBA: Friday 8 AM – Potential trip to Garden of Hope (Gallup) / Zuni’s Historic peach orchards.

WEEK 7: February 27th and March 1st

“Spanish technology, trade and livestock & pests, diseases”

Readings:

- 1) Dunmire, William. 2004. Gardens of New Spain: How Mediterranean plants and foods changed America. The University of Texas Press.
 - Chapter 5: Old World Agriculture comes to the Mexican mainland

- 2) Murdock, Margo. 2010. Down to Earth: A Gardener’s Guide to the Albuquerque Area. 2nd Ed. Albuquerque Area Extension Master Gardeners, Bernalillo County Cooperative Extension Service.
 - Insects, diseases, and vertebrate pests (pages 41 - 61)

Field classes: Integrated Pest Management

WEEK 8: March 6th and March 8th

March 8th: Guest Speaker: Gordon Tooley from Tooley’s Trees: Heirloom Fruit Trees of New Mexico

“Water in the High Desert Areas”

SECOND PAPER DUE: Friday

Readings:

1. Dunmire, William. 2004. Gardens of New Spain: How Mediterranean plants and foods changed America. The University of Texas Press.
 - Chapter 6: Spanish trade, technology, and livestock

2. Murdock, Margo. 2010. Down to Earth: A Gardener’s Guide to the Albuquerque Area. 2nd Ed. Albuquerque Area Extension Master Gardeners, Bernalillo County Cooperative Extension Service.
 - Water, irrigation and the use of ollas in New Mexico (pages 24 - 32)

Online:

- 1) Milkwood. 2014. Making a Zuni Bowl: Let the water do the work.
<http://milkwood.net/2011/11/04/making-a-zuni-bowl-let-the-water-do-the-work/> Last Retrieved October 27, 2014.

- 2) Wikipidia. 2014. Agriculture in the prehistoric Southwest.
http://en.wikipedia.org/wiki/Agriculture_in_the_prehistoric_Southwest Last Retrieved October 27, 2014.

Field classes: Sexual and asexual plant propagation.

WEEK 9: March 13th and 15th

“Weeds, their identification and control”

SECOND MIDTERM: Friday. The exam will cover all the material reviewed until the end of week 8.

Readings:

1. Murdock, Margo. 2010. Down to Earth: A Gardener’s Guide to the Albuquerque Area. 2nd Ed. Albuquerque Area Extension Master Gardeners, Bernalillo County Cooperative Extension Service.
 - Weeds and weed management (pages 61 - 71)

Online:

- 1) Arizona Cooperative of Extension. Master Gardener’s manual: Weed Control in the garden. Chapter 10. Pp. 25 – 29.
<http://ag.arizona.edu/pubs/garden/mg/vegetable/weed.html>. Last retrieved October 27, 2014.

WEEK 10: March 20th and 22nd

Guest Speaker:

“Soil management to improve fertility, water filtration and reduce run-off and erosion”

Readings:

- 1) Murdock, Margo. 2010. Down to Earth: A Gardener’s Guide to the Albuquerque Area. 2nd Ed. Albuquerque Area Extension Master Gardeners, Bernalillo County Cooperative Extension Service.
 - Compost (pages 32 - 41)

Online:

- 1) Homburg, J.A., J.A. Sandor, and J.B. Norton. 2005. Anthropogenic influences on Zuni Agricultural Soils. *Geoarchaeology* 20 (7): 661 – 693.
- 2) Norton, J.B. and J.A. Sandor. 1997. Combating desertification with indigenous agricultural technology at Zuni Pueblo, New Mexico. *Aridlands Newsletter* 41.
<http://ag.arizona.edu/oals/ALN/aln41/norton.html>. Last Retrieved October 27, 2014.

WEEK 11: March 27th and 29th

“Mediterranean gardens & Biodiversity”

Readings:

- 1) Dunmire, William. 2004. Gardens of New Spain: How Mediterranean plants and foods changed America. The University of Texas Press.
 - Chapter 7: New Mexico’s first Mediterranean gardens

Online:

- 1) Nabhan, Gary P. 1995. Native crop diversity in Aridoamerica: Conservation of regional gene pools. *Economic Botany* 39 (4): 387 - 399
- 2) Nabhan, Gary P. 1985. Native American crop diversity, genetic resource conservation, and the policy Neglect. *Agriculture and Human Values* 2 (3): 14 - 17

WEEK 12: April 3rd and 5th

“Forefathers technology Part I: Water control features and runoff”

Readings:

Online:

- 1) Doolittle, William E., J.A. Neely, and M.D. Pool. 1993. A method for distinguishing between prehistoric and recent water and soil control features. *Kiva* 59 (1): 7 – 25
- 2) Sandor, Jonathan A., et. al. 2007. Biogeochemical studies of a Native American runoff agro-ecosystem. *Geoarcheology* 22 (3): 359 – 386
- 3) Smith, Michael E. and T.J. Price. 1994. Aztec-period agricultural terraces in Morelos, Mexico: Evidence for Household level agricultural intensification. *Journal of Field Archaeology* 21: 169 – 179.

WEEK 13: April 10th and 12th

“Forefathers technology Part II: Terraces and Check dams”

Readings:

Online:

- 1) Sandor J.A., P.L. Gersper, and J.W. Hawley. 1990. Prehistoric agricultural terraces and soils in the Mimbres area, New Mexico. *World Archaeology* 22 (1): 70 – 86
- 2) Doolittle, W.E. 1985. The use of check dams for protecting downstream agricultural lands in the prehistoric Southwest: A contextual analysis. *Journal of Anthropological Research* 41 (3): 279 - 305

WEEK 14: April 17th and 19th

April 17th: Film: “A Lesson in Conservation History; New Mexico Turkey” by Steven Rinella (Meat Eater)

“Forefathers technology Part III: Lithic and Cobble mulch”

Readings:

Online:

- 1) Lightfoot, Dale R. 1996. The nature, history and distribution of lithic mulch agriculture: An ancient technique of dryland agriculture. *The Agricultural History Review* 44 (2): 206 – 222
- 2) Lightfoot, D.R. and F.W. Eddy. 1995. The construction and configuration of Anasazi Pebble-Mulch Gardens in the Northern Rio Grande. *Society of American Archaeology* 60 (3): 459 - 470

- 3) White, Carleton S., D.R. Dreesen, and S.R. Loftin. 1997. Cobble mulch: An Anasazi water-conservation gardening technique. Water issues of Eastern New Mexico. New Mexico Water Resources Institute.

WEEK 15: April 24th and 26th

April 26th: Guest Speaker: Miguel Santistevan: AIRE: Seed Sovereignty Declaration

“Presentations & Course Wrap-up”

THIRD & LAST PAPER DUE: Friday

Final Project Paper due

Final Project Presentations: During our last two meetings, students will present their final paper (no longer than 7 minutes including a Powerpoint presentation).

WEEK 16:

Final exam

Guest Speakers committed but not scheduled but:

Brett Bakker: Cuatro Puertas/ former NMDA Organic Inspector and Certifier: Collections for Native Seeds/SEARCH may meet us at the Hubbell House

Dr. Richard Pratt: NMSU: Blue Corn and Beans

Dr. Stephanie Walker: NMSU: Chile in New Mexico

Lee Goodwin: J and L Gardens

Site Visits:

New Mexico State University Agricultural Science Center at Los Lunas

Albuquerque Bio Park: Heritage Farm

Hubbell House