



HEB/HIST/GSCI 310: Plants, People & Civilization

Course Syllabus

Spring Semester – 2027

Instructor: Neto Leão, Ph.D.

Credits: 3

Contact Hours: 45

Prerequisites: none

Class Meeting Days & Time: TBD

Office Hours: By appointment via email. Remote meetings take place at Jitsi on Moodle

Course Type: Standard Course

Course Fee: TBD

Course Description

This course explores the deep connection between human societies and the plant world throughout history. This course examines how plants have shaped human evolution, culture, and technology, from ancient agricultural practices to modern-day global industries. Students will investigate the biology of key plant species, exploring their role in food production, medicine, and environmental sustainability. The course delves into the evolutionary history of plants and how they have adapted to diverse ecosystems, as well as how humans have influenced plant development through domestication and selective breeding. We'll use a number of examples from the deep history of Italy but topics will include the origins of agriculture, the impact of plant-based resources on trade and economies, and the role of plants in shaping human diets and medicine. While rooted in biological concepts, the course is designed for students with an interest in the cultural, historical, and ecological aspects of plants, rather than in laboratory-based science.

Learning Outcomes and Assessment Measures

Below are the course's learning outcomes, followed by the methods that will be used to assess students' achievement for each learning outcome. By the end of this course, students will be able to:

- *Identify* key plant traits that facilitated domestication and their evolutionary significance;
- *Describe* the genetic, ecological, and human-driven factors that shaped the development of major domesticated crops;
- *Summarize* the process of coevolution between humans and plants, including mutualisms and trade-offs in plant-animal interactions;
- *Compare* different regional domestication events and their biological underpinnings, such as those in the Fertile Crescent, Mesoamerica, and East Asia;
- *Analyze* how specific plant species influenced human population dynamics, migration, and the formation of early agricultural societies;
- *Interpret* primary scientific literature in evolutionary biology related to crop domestication, plant-animal interactions, and botanical adaptations;
- *Integrate* evolutionary theory with archaeological and genetic evidence to explain how plants shaped the biological and cultural trajectory of human history.

Course Materials

Readings

A course reader, including all the indicated readings, will be available. The course's Moodle site is the primary location for readings and assignments.

Assessment

Attendance	10%
Weekly Moodle Quizzes	20%
Course Journal	20%
Reflective seminars	25%
Podcast Episode	25%

Grading

Students are reminded that it is their responsibility to note the dates of exams and other assignments. No alternative exam dates will be offered and professors are not required to give partial credit for any late work (they do so at their discretion: the Institute's default policy is no extensions and a zero for any work turned in late). Students who book travel when they have an exam or other assessment will have to change their plans or accept a zero. Letter grades for student work are based on the following percentage scale:

Letter Grade Range	Numerical Score Equivalent	Student Performance
A	93% - 100%	Exceptional
A-	90% - 92%	Excellent
B+	87% - 89%	Superior
B	83% - 86%	
B-	80% - 82%	
C+	77% - 79%	Satisfactory
C	73% - 76%	
C-	70% - 72%	
D+	67% - 69%	Low Pass
D	63% - 66%	
D-	60% - 62%	
F	59% or less	Fail (no credit)

Please note: decimal numerals between 1-4 are rounded down while 5-9 are rounded up: e.g., expect 89.4 to be 89.0 while 89.5 to round up to 90.

Course Requirements

Grades are based on the following criteria.

Attendance (10%)

Attendance is an important part of this course. You have one "sick day," per Institute policy. As long as you are at all the other meetings, you will receive the full 10% for this part of your grade. There are no make-ups offered for attendance.

Weekly Moodle Quizzes (20%)

Students will be assigned one short quiz, opened every Monday morning until the following Sunday. Students can take the same quiz as many times as they want. The quiz will be on Moodle. The quizzes will assess the students' understanding of the readings and discussions for that week.

Course Journal (20%)

Students will need a notebook, which they will use as a personal space through which to reflect on course material and ideas. In-class assignments (e.g. summaries of assigned readings, analyses of primary sources, mental maps, reflections, predictive exercises) will be regularly scheduled and graded twice throughout the semester, i.e. before the mid-semester break (Week 6) and at the end of the course (Week 12). Each of these checks is worth 10% of your grade, for a total of 20%.

Reflective seminars (25%)

Students will collaborate in pairs to prepare a concise presentation, not exceeding 45 minutes, on a selected topic from the course curriculum. Each seminar will shortly present the central concepts of the topic readings and propose a reflection for class discussion. The selection of topics and seminar pairs will be determined during class sessions between weeks 1 and 3. See a full prompt in Moodle.

Podcast Episode (25%)

The podcast episode will be based on the topics chosen by the students for their reflective seminar. Students will create a short podcast episode of up to 30 minutes. They will write a brief outline with an introduction, two or three key points, and a short conclusion. Recording of the audio will be done at Umbra facilities equipped with all the necessary material. Students will edit the material to present a final version of the episode. See a full prompt in Moodle.

Extension & Submitting Late Work

Work submitted after the deadline will receive a grade of zero, not partial credit. Each student is allowed one extension of 24 hours over the entire semester. This can be used for any assignment but the final project. Students need to email the instructor before the deadline and inform the instructor of their use of the extension. Any work submitted after the 24-hour extension will be marked zero. As for all policies, exceptions can be made by the Director for students with special accommodations or in case of medical emergencies, etc.

Attendance Policy

Attendance is expected and mandatory for classroom times and co-curricular activities. The first absence per course due to illness will be considered an excused "sick day" and does not require medical documentation. To receive additional excused absences due to illness, students are required to see a local physician or request a letter from an Institute-approved doctor documenting they should be excused from class for illness.

Unexcused absences will adversely affect a student's academic performance and will result in a reduction of the student's final course grade by 4% per absence up to a maximum of 10%. Excessive unexcused absences (4 or more, not including the excused "sick day") may lead to receiving a failing grade or disciplinary action. It is the student's responsibility to be aware of the number of absences or late arrivals for each course, and to ask the instructor when in doubt.

If students miss class, they are responsible for obtaining class notes from other students and/or for meeting the professor during office hours. Any work missed in class because of an excused absence may be made up within one week of the return to the class. Any work missed that was a quiz or other test must be made up outside of class time and will, in the interest of intellectual honesty, be a slightly different test than the one given in class.

Presence during mandatory field trips is especially important. Missing a mandatory field trip for a course, unless for a very serious reason that is communicated to Umbra staff in a timely manner, will lower the students' grade by half a letter grade (i.e., a final grade of a B+ would be lowered to a B).

Legitimate reasons for an excused absence or tardiness includes: death in immediate family, religious observances, illness or injury, local inclement weather, medical appointments that cannot be rescheduled.

Students who request an approved absence to observe a religious holiday must submit a formal request to the Institute's Director within one week after the add/drop period when course schedules, including any field trips, are finalized. No exceptions will be made after this deadline.

Except in the case of medical emergencies, absences are not accepted when tests are scheduled; tests cannot be made up. Furthermore, scheduled times and dates indicated for exams, quizzes, oral presentations, and any other graded assignments cannot be changed for any reason. Even if more sections of the same class are activated, students may only take exams during the scheduled times and dates for the section they are enrolled in.

Tardiness Policy

Students are expected to attend all classes punctually. Any student arriving up to 15 minutes late or leaving up to 15 minutes earlier than the scheduled class end time will be marked as tardy. Each incident of tardiness (late arrivals to or early departures from class) is 1% off the final grade. However, should a student arrive more than 15 minutes late or depart more than 15 minutes before the conclusion of the class, it will be recorded as an absence.

Students are also expected to remain in class during the time of instruction except for a reasonable amount of time to use the restroom. Students who leave class and do not return during the class session will receive an unexcused absence or late penalty.

Academic Integrity

All forms of cheating (i.e., copying during exam either from a fellow student or making unauthorized use of notes) and plagiarism (i.e., presenting the ideas or words of another person for academic evaluation without acknowledging the source) will be handled according to the Institute Academic Policy, which can be found in the Umbra Institute Academic Policies and Conduct Guidelines.

Utilizing ChatGPT or other artificial intelligence (AI) tools for the generation of content submitted by a student as their own as part of any assignment for academic credit at the Institute constitutes a form of plagiarism. Should the Institute become aware of a student's use of such platforms and services, the student will be subject to the same consequences and judicial proceedings as are in place for plagiarism (defined above).

Classroom Policy

Students are expected to follow the policy of the Institute and demonstrate the appropriate respect for the historical premises that the school occupies. Students are not allowed to use their cell phones or laptops while in class or during co-curricular events and activities, unless otherwise specified in the course syllabus or expressly permitted by the instructor for special learning. This policy also applies to earbuds, headsets, and the like. Students who do not respect these rules will be subject to disciplinary warnings and probation, be given an unexcused absence from class, and other disciplinary action including dismissal from the course.

Moodle

Please note that Moodle, not this syllabus, is the ultimate reference for due dates, assignment prompts, and course announcements. It is *the student's responsibility* to check the site regularly to be aware of announcements as well as to see and record all due dates for assignments.

Schedule of Topics, Readings, and Assignments

WEEK 1

Foundations: Plants, People, and Evolution

Meeting 1: Human Evolution and Plant Use Before Agriculture

Readings:

Ahituv, H., Henry, A. G., Melamed, Y., Goren-Inbar, N., Bakels, C., Shumilovskikh, L., Cabanes, D., Stone, J. R., Rowe, W. F., & Alpers-Afil, N. (2025). "Starch-rich plant foods 780,000 years ago: Evidence from Acheulian percussive stone tools." *Proceedings of the National Academy of Sciences*, 122(3): 1–8.

Wrangham, Richard. (2009). *Catching Fire: How Cooking Made Us Human*. New York: Basic Books.

- Introduction, pp. 1–16.
- Chapter 4, "The Cooked Diet," pp. 63–85.

Meeting 2: Origins of Agriculture and Domestication

Readings:

Piperno, Dolores R. (2011). "The Origins of Plant Cultivation and Domestication in the New World Tropics." *Current Anthropology*, 52(S4): S453–S470.

Diamond, Jared. (1997). *Guns, Germs, and Steel*. New York: W.W. Norton.

- Chapter 7, "How to Make an Almond," pp. 114–131.

Graeber, David & Wengrow, David. (2021). *The Dawn of Everything: A New History of Humanity*. New York: Farrar, Straus and Giroux.

- Chapter 6, "Gardens of Adonis," pp. 237–290.

WEEK 2

Evolution, Agriculture, and History

Meeting 3: Life, Evolution, and Agriculture

Readings:

Mazoyer, Marcel & Roudart, Laurence. (2006). *A History of World Agriculture: From the Neolithic Age to the Current Crisis*. London: Earthscan.

- Chapter 1, pp. 27–45.

Gould, Stephen Jay. (1989). *Wonderful Life: The Burgess Shale and the Nature of History*. New York: W.W. Norton.

- Chapter 1, pp. 23–52.

Meeting 4: Agricultural Revolutions in World History

Readings:

Mazoyer, Marcel & Roudart, Laurence. (2006).

- Chapter 1 (continued), pp. 46–70.

McNeill, J.R. & McNeill, William H. (2003). *The Human Web: A Bird's-Eye View of World History*. New York: W.W. Norton.

- Chapter 2, "The Era of Agriculture," pp. 25–48.

WEEK 3

The Domestication Syndrome

Meeting 5: Genetic Mechanisms of Domestication

Readings:

Purugganan, Michael D. & Fuller, Dorian Q. (2009). "The Nature of Selection During Plant Domestication." *Nature*, 457: 843–848.

Meyer, Rachel S. & Purugganan, Michael D. (2013). "Evolution of Crop Species: Genetics of Domestication and Diversification." *Nature Reviews Genetics*, 14: 840–852.

Zeder, Melinda A. (2009). "The Neolithic Macro-(R)evolution." *Journal of Archaeological Research*, 17: 1–63.

- Read pp. 1–34.

Meeting 6: The Domestication of Fire, Plants, Animals, and... Us

Readings:

Scott, James C. (2017). *Against the Grain: A Deep History of the Earliest States*. New Haven: Yale University Press.

- Chapter 1, "The Domestication of Fire, Plants, Animals, and... Us," pp. 1–48.

Ingold, Tim. (2000). "From Trust to Domination: An Alternative History of Human-Animal Relations."

In *The Perception of the Environment*. London: Routledge.

- pp. 61–76.

WEEK 4

Coevolution and Indigenous Ecological Knowledge

Meeting 7: Humans and Plants as Coevolutionary Partners

Readings:

Norgaard, Richard B. (1994). *Development Betrayed: The End of Progress and a Coevolutionary Revisioning of the Future*. London: Routledge.

- Chapter 4, pp. 62–88.

Odling-Smee, F. John, Laland, Kevin N., & Feldman, Marcus W. (2003). *Niche Construction: The Neglected Process in Evolution*. Princeton: Princeton University Press.

- Chapter 1, pp. 1–36.

Meeting 8: Indigenous Knowledge and Plant Relations

Readings:

Kimmerer, Robin Wall. (2013). *Braiding Sweetgrass*. Minneapolis: Milkweed Editions.

- "Skywoman Falling," pp. 3–18.
- "The Three Sisters," pp. 128–156.

Berkes, Fikret. (2018). *Sacred Ecology* (4th edition). New York: Routledge.

- Chapter 2, pp. 15–41.

WEEK 5

Centers of Domestication

Meeting 9: The Fertile Crescent

Readings:

Diamond, Jared. (1987). "The Worst Mistake in the History of the Human Race." *Discover Magazine*, May Issue, pp. 64–66.

Bellwood, Peter. (2005). *First Farmers: The Origins of Agricultural Societies*. Oxford: Blackwell.

- Chapter 4, pp. 89–118.

Meeting 10: Mesoamerica and the Milpa

Readings:

Benz, Bruce F. (2001). "Archaeological Evidence of Teosinte Domestication from Guilá Naquitz, Oaxaca." *Proceedings of the National Academy of Sciences*, 98(4): 2104–2106.

Casas, Alejandro et al. (2016). "Mexican Ethnobotany: Interactions of People and Plants in Mesoamerica."

In Lira, R., Casas, A., & Blancas, J. (eds.), *Ethnobotany of Mexico*. New York: Springer.

- pp. 1–19.

Warman, Arturo. (2003). *Corn and Capitalism: How a Botanical Bastard Grew to Global Dominance*. Chapel Hill: University of North Carolina Press.

- Introduction, pp. 1–35.

WEEK 6

Italy as a Botanical and Agricultural Crossroads

Meeting 11: *Wheat, Olives, Grapes, and the Mediterranean World*

Readings:

Braudel, Fernand. (1972). *The Mediterranean and the Mediterranean World in the Age of Philip II*. Vol. I. New York: Harper & Row.

- Part I, Chapter 3, pp. 232–279.

Horden, Peregrine & Purcell, Nicholas. (2000). *The Corrupting Sea: A Study of Mediterranean History*. Oxford: Blackwell.

- Chapter 7, pp. 267–320.

Forbes, Hamish. (1995). “The Ethnobotany of the Ancient Mediterranean.”

In Wilkins, J., Harvey, D., & Dobson, M. (eds.), *Food in Antiquity*. Exeter: University of Exeter Press.

- pp. 21–42.

Meeting 12: *Monastic Gardens, Renaissance Botany, and Italian Agricultural Landscapes*

Readings:

Morton, Alan G. (1981). *History of Botanical Science*. London: Academic Press.

- Chapter 5, “Renaissance Botany,” pp. 153–188.

Attlee, Helena. (2014). *The Land Where Lemons Grow: The Story of Italy and Its Citrus Fruit*. London: Penguin.

- Introduction, pp. 1–28.

Findlen, Paula. (1994). *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy*. Berkeley: University of California Press.

- Chapter 3, pp. 157–208.

WEEK 7

Plants, Religion, and Medicine

Meeting 13: *Sacred Plants and Ritual Worlds*

Readings:

Eliade, Mircea. (1964). *Shamanism: Archaic Techniques of Ecstasy*. Princeton: Princeton University Press.

- Chapter 4, pp. 327–387.

Rodríguez Arce, José Manuel & Winkelman, Michael J. (2021). “Psychedelics, Sociality, and Human Evolution.” *Frontiers in Psychology*, 12: 1–14.

Meeting 14: *Medicinal Plants and Ethnobotany*

Readings:

Plotkin, Mark J. (2000). *Medicine Quest: In Search of Nature's Healing Secrets*. New York: Viking.

- Chapter 8, “Plants of the Apes,” pp. 153–176.

Schultes, Richard Evans & Raffauf, Robert F. (1990). *The Healing Forest: Medicinal and Toxic Plants of the Northwest Amazonia*. Portland: Dioscorides Press.

- Chapter 1, pp. 1–35.

WEEK 8

Plants, Empires, and Colonialism

Meeting 15: *The Columbian Exchange*

Readings:

Crosby, Alfred W. (1972). *The Columbian Exchange: Biological and Cultural Consequences of 1492*. Westport: Greenwood Press.

- Chapters 1–3, pp. 3–67.

Mann, Charles C. (2011). *1493*. New York: Knopf.

- Chapter 2, pp. 65–105.

Meeting 16: Botanical Imperialism

Readings:

Drayton, Richard. (2000). *Nature's Government*. New Haven: Yale University Press.

- Chapter 5, pp. 196–245.

Schiebinger, Londa. (2004). *Plants and Empire*. Cambridge: Harvard University Press.

- Introduction and Chapter 1, pp. 1–45.

WEEK 9

Plantation Worlds and Global Capitalism

Meeting 17: Sugar and the Making of the Modern World

Readings:

Mintz, Sidney W. (1985). *Sweetness and Power*. New York: Penguin.

- Chapters 1–3, pp. xv–150.

Williams, Eric. (1944). *Capitalism and Slavery*. Chapel Hill: University of North Carolina Press.

- Chapter 1, pp. 3–29.

Meeting 18: Coffee, Tea, Cotton, and Rubber

Readings:

Schivelbusch, Wolfgang. (1992). *Tastes of Paradise*. New York: Vintage.

- Chapters 1–3, pp. 3–75.

Beckert, Sven. (2014). *Empire of Cotton*. New York: Knopf.

- Chapters 2–3, pp. 53–124.

WEEK 10

Industrial Agriculture and Biodiversity

Meeting 19: The Green Revolution

Readings:

Carson, Rachel. (1962). *Silent Spring*. Boston: Houghton Mifflin.

- Chapters 1–4, pp. 1–64.

Shiva, Vandana. (1991). *The Violence of the Green Revolution*. London: Zed Books.

- Introduction, pp. 1–23.

Meeting 20: Seeds, Monocultures, and Biodiversity

Readings:

Khoury, Colin K., Brush, Stephen, Costich, Denise et al. (2021). “Crop Erosion: Understanding and Responding to Loss of Crop Diversity.” *New Phytologist*, 233(1): 84–118.

Kloppenburg, Jack. (2004). *First the Seed: The Political Economy of Plant Biotechnology*. Madison: University of Wisconsin Press.

- Introduction, pp. 1–36.

WEEK 11

Plants and the Climate Crisis

Meeting 21: Climate Change and Agricultural Futures

Readings:

Cookson, Emma, Hill, David J., & Lawrence, Dan. (2019). “Impacts of Long-Term Climate Change During the Collapse of the Akkadian Empire.” *Journal of Archaeological Science*, 106: 1–9.

IPCC. (2023). *AR6 Synthesis Report: Summary for Policymakers*.

- pp. 1–36.

Meeting 22: Agroecology and Regenerative Futures

Readings:

Altieri, Miguel A. (2018). *Agroecology: The Science of Sustainable Agriculture*. Boca Raton: CRC Press.

- Chapters 1–2, pp. 1–62.

Gliessman, Stephen. (2015). *Agroecology: The Ecology of Sustainable Food Systems*. Boca Raton: CRC Press.

- Chapter 1, pp. 1–23.

Petrini, Carlo. (2007). *Slow Food Nation*. New York: Rizzoli.

- Introduction and Chapter 1, pp. 7–45.

WEEK 12

Plants, People, and the Future

Meeting 23: GMOs, Gene Editing, and Synthetic Biology

Readings:

Qaim, Martin. (2020). “Role of New Plant Breeding Technologies for Food Security and Sustainable Agricultural Development.” *Applied Economic Perspectives and Policy*, 42(2): 129–150.

Jasanoff, Sheila. (2005). *Designs on Nature*. Princeton: Princeton University Press.

- Introduction, pp. 1–23.

Meeting 24: Plants and the Anthropocene

Readings:

Tsing, Anna Lowenhaupt. (2015). *The Mushroom at the End of the World*. Princeton: Princeton University Press.

- Introduction, pp. 1–25.

Myers, Natasha. (2017). “How to Grow Livable Worlds: Ten Not-So-Easy Steps.” *Humanities*, 6(4): 82.

Marder, Michael. (2013). *Plant-Thinking: A Philosophy of Vegetal Life*. New York: Columbia University Press.

- Introduction, pp. 1–21.

WEEK 13

Final Classes & Special Academic Events Week

Presentation of the podcast episodes.