

## SUST 434 - Synthesis of Sustainability Perspectives and Innovations - Fall 2018

### Instructor:

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Office Hours: Tuesday 9:30 - 10:00 and Friday 11:00 – 11:30,  
or by appointment at our convenience.

**Class sessions:** Tuesday, Thursday 12:30-1:45 p.m. Mitchell Hall, Room 115

**Text (required):** Hawken, P. (Ed.). 2017. Drawdown: The Most Comprehensive plan Ever Proposed to Reverse Global Warming. Penguin Books.

### Other assigned readings (excerpts provided via LEARN):

Capra, F. and P. L. Luisi. 2014. The Systems View of Life: A Unifying Vision. Cambridge University Press.

Feldman, D. 2017. Another Way Forward: Grassroots Solutions from New Mexico. Dede Feldman Co./Books.

Friedman, Thomas L. 2016. Thank You for Being Late: An Optimist's Guide to Thriving in the Age of Accelerations.

Farrar, Straus and Giroux, New York. 486 pp. Hardcover ISBN: 978-0-374-27353-8. Ebook ISBN: 978-0-374-71514-4.

Lerch, D. (Ed.). 2017. The Community Resilience Reader: Essential Resources for an Era of Upheaval. Island Press.

Pinker, Steven. 2018. Enlightenment Now. Viking. ISBN 9780525427575

### Course description:

Presents frameworks for complex and creative analysis, including systems thinking and synergistic integration of the three pillars of sustainability: environment, equity, economy. Examines innovative local and international case studies in environment, business, policy, and community development.

Prerequisites: SUST 134.



**Goals, purposes, and expectations:**

This course is suited for students interested in the theoretical and practical aspects of community development, local economies, resource conservation, community activism, and environmental protection. We frame our studies within the context of the “Age of Acceleration” that involves the ongoing development of technologies, coupled to globalization and climate change.

This course provides the opportunity to integrate experiences and knowledge gathered in Introduction to Sustainability and Environment (SUST 134), Sustainability Practicum (SUST 334), and the electives students have taken toward the minor degree in Sustainability Studies. Students will engage with challenges of sustainability as they prepare for the capstone project (SUST 499). Most students gravitate naturally to one or two of the three pillars of sustainability (environmental protection, social justice, and economic vitality). This course examines all pillars and the interactions among them. We will study frameworks for making meaning from complex situations and integrated design, including systems thinking and interdisciplinary philosophical underpinnings of sustainability. This will enable us to acquire a broader view with which to design synergistic applications of sustainability's three pillars.

We engage in a caring, creative learning experience with responsible students and thereby gain perspectives that empower us all as agents of sustainability. From Steve Covey's *Seven Habits of Highly Effective People* we favor an outcome that is "win/win". Some languages have no words for "teaching" but over 30 words for "learning". Indeed, we can only learn; learning is the basis of personal development and enrichment.

**Plagiarism:**

The Faculty Handbook, policy D100, affords instructors the authority to respond to plagiarism by granting a grade of "...F' in the course and the involuntary withdrawal of the student from the class..." Avoid committing plagiarism by making all your work your own. Do not cut and paste from web sites, Dropbox, or articles. Brief, direct quotes are allowed but must be documented as such. *Always put quoted text within quotation marks or in a smaller italics font, with complete attribution to the source.*

**Sexual misconduct, harassment, and assault:**

The following statement is courtesy UNM Office Equal Opportunity. “Our classroom and our university should always be spaces of mutual respect, kindness, and support, without fear of discrimination, harassment, or violence. Should you ever need assistance or have concerns about incidents that violate this principle, please access the resources available to you on campus, especially the LoboRESPECT Advocacy Center and the support services listed on its website (<http://loborespect.unm.edu/>). Please note that, because UNM faculty, TAs, and GAs are considered "responsible employees" by the Department of Education, any disclosure of gender discrimination (including sexual harassment, sexual misconduct, and sexual violence) made to a faculty member, TA, or GA must be reported by that faculty member, TA, or GA to the university's Title IX coordinator. For more information on the campus policy regarding sexual misconduct, please see: <https://policy.unm.edu/university-policies/2000/2740.html> LoboRESPECT Advocacy Center, Women’s Resource Center and the LGBTQ Resource Center have specially trained advocates and they do NOT share information with anyone else without a student’s signed permission.”

**Class courtesy:** Please refrain from using electronic devices in class except to support our learning process.

Please do not saunter out of the room without asking permission, as your absence will stall learning activities of the entire class.

**Accessibility Resource Center (UNM boilerplate):** "In accordance with University Policy 2310 and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention, as I am not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow. Contact Accessibility Resource Center at 277-3506 for additional information. If you need an accommodation based on how course requirement interact with the impact of a disability, you should contact me to arrange an appointment as soon as possible. At the appointment we can discuss the course format and requirements, anticipate the need for adjustments and explore potential accommodations. I rely on the Disability Services Office for assistance in developing strategies and verifying accommodation needs. If you have not previously contacted them I encourage you to do so."

**Late assignments:** Due dates are firm. Late assignments will lose 10%.

**Grading:** A+ >99%; A 93-99%; A- 90-93%; B+ 87-89.9%; B 83-87%; B- 80-83%; C+ 77-79.9%; C 73-77%; C- 70-73%; D+ 67-69.9%; D 63-67%; D- 60-63%; F <60%; C/NC not allowed

| <b>Assignments</b>                                  | <b>%</b> | <b>Due</b>         |
|---|----------|--------------------|
| Readings  | 20       | Beginning of class |
| Midterm   | 20       | October 9          |
| Final   | 20       | December 13        |
| P <sup>3</sup> Interpretation of Drawdown Solutions | 20       | Oct. 23 & 25       |
| Mock Grand Challenge Summit                         | 20       | Nov. 29 & Dec. 4   |

### **Overview and Strategic Design:**

Premise: Recent semesters of SUST 434 revealed trends in climate, technology, and markets that conspire to create a world of rapid change, so rapid that humans struggle to keep up. Friedman's (2016) conclusion is that professionals must be life-long learners. The purpose of a college education is to master the skill of "learning how to learn" so that learning can continue. Wenger (2000) sees learning as a collective enterprise that occurs within communities of practice. This is appropriate for sustainability because of the social equity pillar and because of policies that currently fail to meet the sustainability challenge.

Grooming for SUST 499: Your path through the Sustainability Studies minor goes from SUST 434 to 499. In SUST 499, you will be guided to develop your own “signature” capstone project, stretching over two semesters. This semester, some class sessions, visitors, and assignments will help position you for a more powerful 499 experience.

Co-creating our shared experience: Assignments lead to deliverables of direct value to each student. By being transparent and accountable to each other, our individual and collective effectiveness will last as a future reminder of how best to adapt and engage with challenges in an uncertain world of rapid change. Class sessions will orient within the grid, below, to cover advances and challenges created at the intersections of the three pillars of sustainability and Friedman’s Three Ms: Moore’s law, Mother Nature, and Markets.

**Concepts:**

Abundance mentality Moore’s law Systems thinking Holism, scaling Footprints, biocapacity Biodiversity Stability  
Tipping point Resilience Globalization Climate chaos Consumerism

## Part I. Holistic Systems Theory and Principles

Please read assignments *before class* and hand in [reading summaries](#). Please complete, print, and bring to class a reading summary for readings identified with **Read\***.

**Aug. 21** *Introductions & Inventory of Skills and Interests*

**Aug. 23** *300 Years of Progress and Trends*

**Read\*** Burger et al. 2012.

Supplement: Pinker Chapter 21 - Reason

Resource: [Reading and writing like a scholar](#)

**Aug. 28** *Systems Thinking Overview*

**Read\*** Capra and Luisi, Chapter 17 – Connecting the dots

**Aug. 30** *Elements of Systems Thinking*

**Read\*** Walker and Salt, Ch. 9 from Community Resilience Reader

Supplement: [Holling \(2001\)](#). A classic theory of systems and how they collapse and re-organize

**Sept 4** *Sustainability is Holistic*

**Read\*** [Milne \(2017\)](#) - A framework for holistic sustainability

**Sept 6** *The Element of Openness/Closure*

**Read\*** [Berry \(1988\)](#) – Philosophy of holism guides sustainability

**Sept 11** *Applied: Closing local food systems*

**Read\*** Feldman Chapter 3 Planting Seeds for Community Health

**Sept 13** *The Element of Energy and Economy*

**Read\*** Fairchild & Weinrub Ch. 11 Energy Democracy in CRR  
Supplement: [Garrett \(2011\)](#) – *Energy use drives the economy*

**Sept 18** *Applied: Drawdown – Toward Zero Carbon*

**Read\* (Submit special form for this selection)** Drawdown pp. ix – xiv  
**Assignment:** *P<sup>3</sup> Drawdown* + Organize teams for P<sup>3</sup> analysis

**Sept 20** *The Element of Organismal Experience*

**Read\*** [Rees \(2017\)](#) *Human evolutionary psychology*  
Supplement: Capra & Luisi, Ch. 7 What is Life?  
Supplement: [Ernest et al. \(2003\)](#) – *Solidarity with all organisms*

**Sept 25** *Applied: Biodiversity: Ecosystem functions, stability, resilience, and tipping points*

**Read\*:** [Barnosky et al. \(2012\)](#) Approaching a regime shift in the biosphere  
Supplement: [Worm et al. \(2006\)](#)  
Supplement: [Scheffer et al \(2012\)](#)

**Sept 27** *The Element of Consciousness/Cognition*

**Read\*** Capra and Luisi, Chapter 12  
Supplement: Friedman (2016; [Chapter 2](#)) - *How does technology create challenges for us?*

**Oct 2** *Applied: Life, Mind, and Society*

**Read\*** Capra and Luisi, Chapter 14

**Oct 4** *The Element of Narrative Legitimacy*

**Read\*** [Koltko-Rivera \(2004; pp. 3-5, 22-40\)](#) - *Theory of worldview*  
Supplement Pauli ([1998; Chapter 3](#)) – *Western v. indigenous/Asian worldview*

Oct 9 **Midterm Exam**

Oct 11 Fall Break

## Part II. Drawdown and the Triple Bottom Line

Oct 16 *P<sup>3</sup> Drawdown project check-in & work session; form teams*

Resource: [How to reduce carbon footprint](#)

Oct 18 *P<sup>3</sup> Drawdown presentation preparation*

**Assignment:** Mock Summit Team Project

Oct 20 Saturday field trip to Rio Grande Community Farm Maize Maze and surroundings. This experience will help frame the opportunities and stakeholders for the summit assignment.

Oct 23 **Present *P<sup>3</sup> Drawdown (teams 1-3)***

Oct 25 **Present *P<sup>3</sup> Drawdown (teams 4-6)***

## Part III. Friedman's Three: Moore's law, Mother Nature, and Markets

In this part, we intersect the three pillars of sustainability (people, planet, profit) with Friedman's "Three Ms" to reveal advances for sustainability and emerging challenges.

Oct 30 **M1: *Moore's law technologies of abundance***

**Read\*** Friedman (2016; Chapters 2 & 3)

Supplement: [Chapter 6](#) from Diamandis, P.H. and S. Kotler. 2012. *Abundance: The Future is Better than You Think*. Free Press.

Supplement: Critical view about technology [Chapter 12](#) from: Huesemann, M. and J. Huesemann. 2011.  
Techno-Fix: Why Technology Won't Save Us or the Environment. NSP.

**Nov 1** *Scale and Scaling – The Hallmark of Systems Organization*

Supplemental classic paper: [Bettencourt et al. \(2007\)](#), or watch [Geoff West TED talk](#)

**Nov 6 M2: *Mother Nature, a.k.a. Climate Chaos***

**Read\*:** [Friedman \(2016; Chapter 6\)](#)

Supplement: N. Rich. Losing Earth. (New York Times, August 5, 2018)

**Nov 8**

*We respond: Tres Hermanas Refugee Farmer Project*

**Read\*** Feldman Ch. 15 Southwest Creations

**Guest:** Zoe Fink, Dir., THRF

**Nov 13**

*We Lead: The Grand Challenge Visioning Summit* (Monic Kowal, guest)

**Read\*** Sawyer, ch. 13, CRR

**Nov 15 M3: *Markets, a.k.a. globalization***

**Read\*:** [Friedman \(2016; Chapter 5\)](#)

Supplement: [Mullainathan, S. and E. Shafir. 2013](#). Scarcity: The New Science of Having Less and How It Defines Our Lives. Picador.

Supplement: [Seppelt et al. \(2014\)](#)

## Part IV. Visions of the Summit

**Nov 20** *Summit preparation – draft your team's vision*

**Nov 22** Thanksgiving holiday



Nov 27 *Summit preparation session*

Nov 29 **Mock Summit – First try of Honeybee Democracy and Self-critique**

Dec 4 **Mock Summit – Refinement and Evaluation**

Dec 6 *Course wrap-up and review for final*

Dec 13 **Final Exam 10:00 am – Noon**

## **Additional resources:**

### **Community assets:**

Sustainability Studies list of [community partners](#)

Claudia Isaac presentation – [Community Capacity and Strategic Asset](#)

### **Theory of participatory management:**

Rio Grande Company:

- a) [Concept of participatory management](#)
- b) [Principles of team evaluation](#)
- c) [Team evaluation form](#)

### **Entrepreneurship:**

[WESST](#) , see the [break-even calculator](#)

Rob Delcampo ([Innovation Academy](#), [Innovate ABQ](#))

- a) [Economic context of Albuquerque](#)
- b) [Entrepreneurial 'ecosystem'](#)

### **Renewable energy and conservation:**

Rick Rennie ([High Five](#); [presentation](#))

[Deployment of PV in the US](#)

Regina Wheeler, Positive Solar. [Solar as Disruptive Opportunity](#)