

Topics in Houseplants  
Instructor: Jesse Steele / [email address]  
Faculty Sponsor: Dr. Sari Palmroth / Environmental Science & Policy / [email address]

Fall / 2022  
Monday / 7:00pm  
Location TBD

**Course Description:**

Looking to grow a green-thumb? This highly interdisciplinary course invites students to view their dorm room decor from a variety of scientific, cultural, and ethical perspectives. Pulling from biochemistry, functional ecology, visual media studies, and political economy, this course will teach students the science behind plant function and how to use that science to inform adaptable plant care strategies. In doing so, we will also consider the ways in which living organisms are reduced to financial capital, how flow of genetic material is managed and altered through colonial intervention, and how people extract controlled nature experiences out of houseplants. Students will practice horticultural techniques on plants provided to them (which they will keep). No previous experience is required in horticulture or science.

**Objectives:**

- Students will learn how to choose which plant care techniques to employ in a given situation based on plant structure and ecology.
- Students will learn how to identify common houseplant ailments and provide science-based intervention to support the recovery of their plant.
- Students will develop ethical frameworks to help inform future interactions with houseplants and extra-human nature.
- Students will practice observation skills as a gateway to learn about research methods.
- Students will practice visual thinking strategy (VTS) as a way to infer the cultural placement of houseplants.

**Required Texts:**

All required texts will be provided.

**Course Requirements:**

A grade of satisfactory in this course requires satisfactory completion of all written and oral assignments, attendance, and participation. Students are required to attend at least 11 classes to receive a passing grade. Students are also strongly encouraged to actively engage in course

discussions, demonstrations, and activities. Completion of two written assignments totaling approximately 1500 words will be required:

- Prompt #1: Observational Project (~1000 words)
- Prompt #2: Analysis of Houseplants in Visual Media (~500 words)

Further details of these writing assignments can be found in the course schedule.

### Course Schedule:

Readings listed for a given week will be discussed *during* that meeting period (so please read it beforehand). If a reading is **bolded**, please pay special attention to it. The material it contains may be challenging and is central to the topic for that day. An asterisk (\*) next to a class denotes which dates the faculty sponsor will attend.

#### Week 1\*      **Setting the Scene: COVID-19 & “Monstera Mania”**

##### In-Class:

- Introductions
- Intro Survey
- Discussion of Syllabus
- Google Trends Activity

#### Week 2      **Botanical Imperialism: What Makes a Houseplant?**

##### In-Class:

- JIGSAW
- Discussion
  - Control of genetic material flow and consequences
  - What makes a plant “native”?
  - How do botanical imperialism and settler colonialism inform definitions of houseplants?
- Optional: Foraging for houseplants outdoors

##### Readings (72 pages):

- **[Postman, N. \(1986\). Defending Against the Indefensible. The International Schools Journal, 0, 17–26.](#)**
- **Brosz, F. (1991). Botanical imperialism: The Stewardship of Plant Genetic Resources in the Third World. Critical Sociology, 18(1), 3–17. <https://doi.org/10.1177/089692059101800101>**
- **Mastnak, T., Elyachar, J., & Boellstorff, T. (2014). Botanical Decolonization: Rethinking Native Plants. Environment and Planning D: Society and Space, 32(2), 363–380. <https://doi.org/10.1068/d13006p>**

- Tuck, E., & Tung, K. (2012). Decolonization is not a metaphor. *Decolonization: Indigeneity, Education & Society*, 1(1), 1–40.

## Week 3

## Light

### **PROMPT #1 ASSIGNED**

- *Students will be given a plant. For 4 weeks, students will carefully observe the plant through a medium of their choice after consultation with the instructor. In choosing how to observe a plant, students should consider what they wish to learn and how their choice of observational strategy may elucidate relevant information. Collected data will be synthesized into a ~1000 word research report, including the following sections: methods, results, and discussion. Students are expected to include at least 3 references. The goal of this activity is to slow down, develop a deep connection with one's plant, and practice turning observations and metrics into meaningful interpretations. More instructions will be provided in a document posted on Sakai.*

### In-Class:

- Lecture
  - Photosynthesis
  - Light Intensity Variation
  - Adaptations to Light Variation
  - UV Damage & DNA Repair
- Discussion
  - “Thrive off neglect”
  - Finding the right information online
- Demonstration/Practice

### Readings (55 pages):

- **Nick Alexander. (2021, March 22). Why Companies Say Every Plant ‘Thrives’ in Low or ‘Bright Indirect Light’ & Explaining Light.**  
[https://www.youtube.com/watch?v=3AVRQa\\_vayw](https://www.youtube.com/watch?v=3AVRQa_vayw)
  - Watch 0:00 to 11:30.
- **Botany | NC State Extension Publications. (n.d.). Retrieved January 14, 2022, from**  
<https://content.ces.ncsu.edu/extension-gardener-handbook/3-botany>
  - Read sections II through IV.
- Bitá, C. E., & Gerats, T. (2013). Plant tolerance to high temperature in a changing environment: Scientific fundamentals and production of heat

stress-tolerant crops. *Frontiers in Plant Science*, 4, 273.

<https://doi.org/10.3389/fpls.2013.00273>

- Read pgs 2-9.

## **Week 4**

### **Water**

#### In-Class:

- JIGSAW
- Lecture
  - Water Transport Anatomy
  - Determinants of Water Demand
  - Hydraulic Conductivity
  - Acid Growth Hypothesis
- Demonstration/Practice

#### Readings (59 pages):

- Scoffoni, C., Chatelet, D. S., Pasquet-kok, J., Rawls, M., Donoghue, M. J., Edwards, E. J., & Sack, L. (2016). Hydraulic basis for the evolution of photosynthetic productivity. *Nature Plants*, 2(6), 16072. <https://doi.org/10.1038/nplants.2016.72>
- Körner, C. (2015). Paradigm shift in plant growth control. *Current Opinion in Plant Biology*, 25, 107–114. <https://doi.org/10.1016/j.pbi.2015.05.003>
- Williamson-Benavides, B., & Dhingra, A. (2021). Understanding Root Rot Disease in Agricultural Crops. *Horticulturae*, 7(33).

## **Week 5**

### **Soil**

#### In-Class:

- Lecture
  - Soil Health
  - Nutrient Uptake
  - Mineral Weathering
  - Fertilizers
- Demonstration/Practice

#### Readings (80 pages):

- Doran, J. W., & Zeiss, M. R. (2000). Soil health and sustainability: Managing the biotic component of soil quality. *Applied Soil Ecology*, 15(1), 3–11. [https://doi.org/10.1016/S0929-1393\(00\)00067-6](https://doi.org/10.1016/S0929-1393(00)00067-6)

- **Soils and Plant Nutrients | NC State Extension Publications. (n.d.).**  
<https://content.ces.ncsu.edu/extension-gardener-handbook/1-soils-and-plant-nutrients>
- Berg, G., Mahnert, A., & Moissl-Eichinger, C. (2014). Beneficial effects of plant-associated microbes on indoor microbiomes and human health? *Frontiers in Microbiology*, 5, 15.  
<https://doi.org/10.3389/fmicb.2014.00015>
- Cai, G., Carminati, A., Abdalla, M., & Ahmed, M. A. (2021). Soil textures rather than root hairs dominate water uptake and soil–plant hydraulics under drought. *Plant Physiology*. <https://doi.org/10.1093/plphys/kiab271>

## Week 6\*

### Propagation

#### In-Class:

- Lecture
  - Auxin-mediated Signaling Pathways
  - Adventitious Roots
- Discussion
  - How does gifting propagations disrupt and/or mediate botanical imperialism?
- Demonstration/Practice

#### Readings (50 pages):

- [Introduction: A Historical Perspective. \(2011\). CornellCast.](#)
- [Overview of Propagation Methods. \(2011\). CornellCast.](#)
- [Cutting, or the Story of the Ornamental Plant Industry. \(2011\). CornellCast.](#)
- [Steffens, B., & Rasmussen, A. \(2016\). The Physiology of Adventitious Roots. \*Plant Physiology\*, 170\(2\), 603–617.](#)
  - Read “Case Study 3: Wound-Induced Adventitious Roots: Cutting Propagations”
- [Ellen, R., & Komáromi, R. \(2013\). Social exchange and vegetative propagation: An untold story of British potted plants. \*Anthropology Today\*, 29\(1\), 3–7.](#)
- [The science of air-layering. \(2017\). Bonsai Nut.](#)

## Week 7

### Variegation & Genetics

#### In-Class:

- JIGSAW
- Lecture
  - Variegation Types and Causes

- Effects on Plant Function
- Reversion
- Prediction
- Demonstration/Practice

Readings (56 pages):

- Sean. (2021, September 23). Predicting variegation (accurately) on variegated monstera and other variegated aroids.  
<https://www.youtube.com/watch?v=YzVzLkT0jFc>
- Zhang, Z., Liu, Z., Song, H., Chen, M., & Cheng, S. (2019). Protective Role of Leaf Variegation in *Pittosporum tobira* under Low Temperature: Insights into the Physio-Biochemical and Molecular Mechanisms. *International Journal of Molecular Sciences*, 20(19), 4857. <https://doi.org/10.3390/ijms20194857>
  - Read pgs. 1-12
- Yang, J., & Sadof, C. S. (1995). Variegation in *Coleus blumei* and the Life History of Citrus Mealybug (Homoptera: Pseudococcidae). *Environmental Entomology*, 24(6), 1650–1655.  
<https://doi.org/10.1093/ee/24.6.1650>
- Nick Alexander. (2020, August 21). Variegation, Where Does it Come From? | Monstera Thai Constellation VS. Albo Borsigiana 🌱🧬. <https://www.youtube.com/watch?v=wmdrWfizNo>

**Week 8**

**Variegation & Desirability**

**PROMPT #1 DUE:**

- Please submit as a **Google Document** on Sakai before class. The instructor will provide feedback within a week.

In-Class:

- Discussion
  - Tissue Culture
  - Exoticism
  - Houseplants & Socioeconomic Status

Readings (60 pages):

- Walsh, A. (2010). The Commodification of Fetishes: Telling the Difference between Natural and Synthetic Sapphires. *American Ethnologist*, 37(1), 98–114.  
<https://doi.org/10.1111/j.1548-1425.2010.01244.x>
- Revell, J. (2020). Money Grows on Trees: Into the World of Super Rare Houseplants.

<https://thelatch.com.au/money-grows-on-trees-into-the-world-of-super-ra-re-houseplants/>

- Hussain, A., Qarshi, I. A., Nazir, H., & Ullah, I. (2012). Plant Tissue Culture: Current Status and Opportunities. Recent Advances in Plant in vitro Culture. IntechOpen. <https://doi.org/10.5772/50568>

## Week 9\*

### Performing Sustainability #1: Houseplants in Social Media

#### PROMPT #2 ASSIGNED:

- *Students will choose a piece of relevant visual media. Considering the piece's intended audience, presentation platform, and medium, students will analyze houseplants' role(s) in visual media. Students may choose a singular piece to deeply interrogate or a collection of pieces to observe larger trends. A succinct argument will be submitted in a ~500 word paper, including at least 1 additional reference. Some questions to consider include: (i) what purpose is/are the plant(s) serving in this visual media?; (ii) what would the piece be like without the plant(s)? Would the message persist?; (iii) who produced the media, and what is their goal? Please clearly and concisely deconstruct the logic behind a houseplant's inclusion (or focus) in the media.*

#### In-Class:

- Intro to Visual Thinking Strategy (VTS)
- Social Media Activity
- Discussion
  - Nature as landscape and picturesque
  - Controlling encounters with nature
  - Greenwashing products with houseplants

#### Readings (53 pages):

- Cronon, W. J. (1995). **The Trouble with Wilderness; or, Getting Back to the Wrong Nature.** 24.
- Singha, S. (2020, February 26). Plastic nature: The irony of fake plants in our homes. Medium.  
<https://medium.com/@soniasingha/plastic-nature-the-irony-of-fake-plants-in-our-homes-fd2cb8004ddb>
- The following poems by Olive Senior (note: I recommend reading alongside the audio, if available):
  - **Plants**
  - **Starapple**
  - **Guinep**

- Gourd
- Seeing the Light
- Meditation on Yellow

<https://www.ryerson.ca/olivesenior/poetry.html>

## **Week 10 Performing Sustainability #2: Poaching & Procurement**

### In-Class:

- Discussion
  - Poaching as colonialism
  - Online shopping as a mechanism of maintaining the imperial state

### Readings (50 pages):

- Lavorgna, A., & Sajeve, M. (2020). Studying Illegal Online Trades in Plants: Market Characteristics, Organisational and Behavioural Aspects, and Policing Challenges. *European Journal on Criminal Policy and Research*. <https://doi.org/10.1007/s10610-020-09447-2>
- Bretman Rock. (2020, July 12). House Plant Tour \*Crazy. <https://www.youtube.com/watch?v=tqMMN94vM-I>
- Is Your Pandemic Plant Obsession Driving Rare Species to Extinction? (2021, May 6). EcoWatch. <https://www.ecowatch.com/black-market-plants-extinction-2652895775.html>
- Rosenberg, Lizzy. Our Houseplant Obsession Has Lead to Devastating Amounts of Succulent Poaching in Africa. (2021, August 9). Green Matters. <https://www.greenmatters.com/p/succulent-poaching-africa>

## **Week 11 Dying Plants & Eco-Grief**

### In-Class:

- Plant-care support check-in
- Lecture
  - Plant Immune Function & Implications for Indoor Plants
  - Ailments & Treatments
  - Dying Leaves & Pruning
- Discussion
  - Grief in human & non-human relationships
- Demonstration/Practice

### Readings (70 pages):

- Windle, P. (1992). The Ecology of Grief. *BioScience*, 42(5), 363–366. <https://doi.org/10.2307/1311783>



- Wiginton, K. (2019). When my houseplants died, I felt relieved. Here's why. Chicagotribune.Com.  
<https://www.chicagotribune.com/lifestyles/sc-fam-brown-thumb-stress-essay-827-20190822-5c4ymjbdznfchoxrqjvs73zpwm-story.html>
- Bryan, C. (2020, January 14). It's not weird to mourn your dead plant. In fact, it makes perfect sense. Mashable.  
<https://mashable.com/article/mourning-a-dead-plant>
- Redmalm, D. (2015). Pet Grief: When is Non-Human Life Grievable? The Sociological Review, 63(1), 19–35.  
<https://doi.org/10.1111/1467-954X.12226>
- Integrated Pest Management (IPM) | NC State Extension Publications. (n.d.).  
<https://content.ces.ncsu.edu/extension-gardener-handbook/8-integrated-pest-management-ipm>

## Week 12\* Adapting Plant-Care Strategies to Ecological Niches

### PROMPT #2 DUE:

- Please submit as a **Google Document** on Sakai before class. The instructor will provide feedback within a week.

### In-Class:

- Plant-care support check-in
- Lecture
  - Life-history Strategies & Trade-offs
    - (growth, maintenance, reproduction)
  - Growing Seasons
- Discussion
  - Gender imbalances in care
- Demonstration/Practice

### Readings (73 pages):

- Rajaveraja, H. (2020). Care in Human-Houseplant Relationships [Gender Studies, Tampere University].  
<https://trepo.tuni.fi/bitstream/handle/10024/119892/Rajaver%c3%a4j%c3%a4Hilla.pdf?sequence=2&isAllowed=y>

## Week 13 Nature & the Houseplant Industry under Capitalism

### In-Class:

- Discussion
  - What is capitalism and how does it work?

- How is extra-human nature conceived and appropriated under capitalism?
- How are houseplants implicated as capitalist responses to apocalypse & eco-grief?
- Optional Field Trip: Duke Gardens
- Outro Survey

Readings (74 pages):

- Speth. *Modern Capitalism: Out of Control*. 46-66.
- Garber, M. (2021, April 20). The Dark Side of the Houseplant Boom. The Atlantic.  
<https://www.theatlantic.com/culture/archive/2021/04/dark-side-houseplant-boom-nature-empathy/618638/>
- Moore, J. W. (2014). The Value of Everything? Work, Capital, and Historical Nature in the Capitalist World-Ecology. Review (Fernand Braudel Center), 37(3–4), 245–292.  
[https://www.jstor.org/stable/90011611?seq=4#metadata\\_info\\_tab\\_contents](https://www.jstor.org/stable/90011611?seq=4#metadata_info_tab_contents)