

2024 Market Gardening Apprenticeship Syllabus



Location

- Columbia's Agriculture Park (1769 W Ash St, Columbia, MO 65203)
- Off-site field trip locations TBD

Contact

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Objectives

- Whether you're a new grower and passionate about diving right in, or are an experienced grower hoping to take your operation to the next level, this apprenticeship provides a season-long opportunity to learn the technical grower and entrepreneurial skills needed to run a market garden operation in mid-Missouri. Training and work will primarily operate out of our 1-acre urban demonstration farm, where we grow around 30,000 pounds of fresh produce annually for donation to the Food Bank for Central & Northeast Missouri's local Food Bank Market. Skillsets covered will include:
 - **Crop planning and record keeping** - creation of a field map for 25+ vegetable types
 - **Greenhouse management** - Vegetable seedling production and nursery care
 - **Regenerating soil health** - Specifically for abused, urban lots; how to amend your soil for chemical, biological, and physical health qualities, including interpretation of soil tests
 - **Vegetable bed prep and maintenance** - the tillage spectrum and how and when to do it, as well as use and maintenance of two-wheel tractors and implements
 - **Weed, pest, and disease management** - Working with nature in managing for weeds, pests, and crop disease
 - **Tool selection, ergonomics, and maintenance**
 - **Cover cropping** - how to incorporate diverse, soil building cover crops in the crop plan and how to establish them on the market garden scale
 - **Harvesting and handling** - harvesting efficiencies and considerations for food safety
 - **Planting for beneficial insects and pollinators** - species selection and planting techniques for perennial natives
 - **Small business management** - create a small business plan and develop skills in marketing your crop, through visiting speakers from Lincoln University Extension

Requirements and Attendance

- Apprenticeship runs from the beginning of March through the end of October, and a total of 384 hours attendance is required for certificate of completion from Lincoln University
- Over the 32 week program you will need to participate in 12 hours per week which includes:
 - 1x required Monday evening workshop/guest lecture per week (2-3 hours each)
 - 1x required Tuesday or Thursday hands-on lesson per week (3 hours each)
 - AM option Tuesday or PM option Thursday available
 - 2x required hands-on work shifts per week (3 hours each)
 - AM and PM options available on weekdays

- Saturday 9-Noon option available
- 2-3x optional farm field trips over the course of season (typically planned for Sundays)

Tentative Weekly Schedule

Mon	Tues	Wed	Thurs	Fri	Sat	Sun
AM shift option*	AM hands-on lesson (priority for full participants)	AM shift option*	AM hands-on lesson (priority for partial participants)	AM shift option*	AM shift option 9-Noon	3-4 Farm tour field trips over course of the season
PM 2-3hr Evening Workshop or Guest Lecturer 5:30-8:30	PM shift option 5:30-8:30	PM shift option 5:30-8:30	PM hands on lesson 5:30-8:30		Once/month Saturday workshops at Ag Park (optional)	

*AM shifts listed without set times will typically be 8-11am in spring/fall weather, and some shifts will move to 7-10am during summer heat

Tentative Monthly Schedule

1. March:

a. Lectures:

- i. Farming: Intro to CCUA Planting for the Pantry (P4P) Farm at Agriculture Park
 1. Our mission/goals
 2. Our values and what drives our decision making
 3. Our programs on-site and throughout Columbia
- ii. Entrepreneurial: Lincoln U: Small, Sustainable Farm and Agribusiness Entrepreneurship

b. Hands-On Lessons:

- i. Greenhouse seeding
 1. General greenhouse management
 2. Propagation of robust, uniform transplants
 3. Daily nursery care
- ii. Planting/Landscaping with Natives in the Ag Park Food Forest
 1. Tour with Matthew Dolan on the design and installation of the Food Forest and Demonstration Garden Plantings
- iii. Direct seeding crops using push seeders like the Earthway and Jang

- c. **Field Trip/Guest:** Hannah Hemmelgarn w/ MU Center for Agroforestry on Perennializing the Small Farm: Temperate Agroforestry Crops and Practices

2. April:

a. Lectures:

- i. Farming: The Growing Environment: Maximizing Photosynthesis and an Intro to Soil Health
 1. Photosynthesis: What is it and how do we maximize it?
 2. Intro to Soil Health
 3. Sources of farm fertility we employ
- ii. Farming: Post-harvest Handling & Food Safety
- iii. Entrepreneurial: Lincoln U: Economics of local food production and consumer behavior

b. Hands-on Lessons:

- i. Bed preparation and transplanting spring crops
- ii. Holistic fruit trees' spray mixing and application
- iii. Amendment mixing for our "recipe for success"

c. Field Trip/Guest:

- i. Matthew Dolan on Holistic Fruit Tree Care

3. May:

a. Lectures:

- i. Farming: Post-harvest Handling & Food Safety
- ii. Entrepreneurial: Lincoln U: Small farm agribusiness model - production and management

b. Hands-on Lessons:

- i. Harvesting cool-season spring crops
- ii. Flipping beds and succession cropping (Planting tomatoes!)

c. Field Trip/Guest:

- i. NRCS Soil Health Specialists present Rainfall Simulator & NRCS Funding Opportunities
- ii. Three Creeks Produce Farm Tour
- iii. Working with Native, Wild Edibles with Nadia Navarrete-Tindall

4. June:

a. Lectures:

- i. Farming: Preventative weed control and the right tools for the job
- ii. Entrepreneurial: Lincoln U: Small Farm Agribusiness Plan: Starting and managing small business

b. Hands-on Lessons:

- i. Various weed cultivation methods, including hoes, flame, occultation, and as a last resort, by hand
- ii. Cover cropping with buckwheat and diverse summer annual mixtures
- iii. Addressing ongoing crop fertility demands through sidedressing

c. Field Trip/Guest:

- i. David Yarrow presenting on the Soil Carbon Engine
- ii. Sage Garden farm tour with Erica Parker
- iii. Dr. Kelly Wilson from MU's Center for Regenerative Ag presenting on Regenerative Agriculture

5. July:

a. Lectures:

- i. Farming: Two-wheel tractor implements and maintenance w/ Clint Shannon
- ii. Entrepreneurial: Lincoln U: Small farm Agribusiness Plan -Financial and marketing

- b. **Hands-on lesson:** Getting water to your crops!
 - i. Irrigation systems and water conservation strategies
 - ii. Starting summer seedlings for fall harvests
 - c. **Field Trip/Guest:**
 - i. Tour of Lincoln University's Busby Farm
 - ii. Tour of Lincoln University's Carver Farm
 - iii. Summer apple care, harvesting, and working with landowners in starting your business with Adam Saunders
- 6. **August:**
 - a. **Lectures:**
 - i. Farming: Insect pests and disease management
 - 1. Impact of soil health on plant health
 - 2. Observation and placement of physical barriers
 - 3. Planting for beneficial insects
 - 4. Resorting to pesticides
 - ii. Farming: Market Garden Cover Cropping
 - iii. Farming: Digging Deeper into Soil Science!
 - 1. Soil testing and analysis
 - 2. Mineral balancing
 - iv. Entrepreneurial: Lincoln U: Microeconomics considerations to maximize small Farm profitability
 - b. **Hands-on lesson:** Shade cloth and other strategies for successful hot-weather planting
- 7. **Sept.:**
 - a. **Lectures:**
 - i. Farming: Digging deeper into soil science!
 - 1. Soil mineral balancing
 - 2. Biology-based nutrient-cycling
 - 3. Physical properties of soil and how to prepare a field
 - a. Many forms of tillage and how to reduce them
 - 4. Carbon/nitrogen cycling
 - ii. Entrepreneurial: Lincoln U: Business structures and management tools for small farms
 - b. **Hands-on lesson:** Establishment of perennial pollinator and beneficial insect-attracting hedgerows
 - c. **Field Trip/Guest:**
 - i. Happy Hollow Farm tour on Season Extension w/ Liz Graznak
- 8. **Oct.:**
 - a. **Lectures:**
 - i. Farming: Crop Planning for the following season & Crop Rotations
 - 1. How to create a crop plan and field map?
 - 2. Crop rotations
 - 3. How to plan for meeting market/production goals?
 - 4. Sourcing seeds
 - ii. Farming: The Nitrogen Cycle
 - iii. Entrepreneurial: Lincoln U: Small farm environmental economics /Agribusiness plan analysis
 - b. **Hands-on lesson:** Winterizing vegetable beds

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