HORT 792
Urban Food Production Practicum
Manual

Kansas State University
Department of Horticulture and Natural Resources

(Updated August 2016)
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The Urban Food Systems Specialization at Kansas State University has established this manual to explain the requirements and objectives of the Practicum in Urban Food Production. It is intended for use as a handbook for students enrolled in the practicum as well as practicum advisors and site supervisors where a practicum learning activity may take place.

The Practicum experience is an opportunity for student’s to demonstrate their knowledge and skills and their readiness for future endeavors in urban agriculture/production. The student is supported in this experience by the leadership of their practicum advisor (usually their major professor).

Urban Food Systems Program Mission Statement
The mission of the Urban Food Systems Program at Kansas State University is to prepare students to work as professionals in positions such as director/program managers in not-for-profit organizations, city governments or extension programs in urban districts facilitating community gardens, urban farming, farmers markets, or farm-to-school programs.

Urban Food Systems Program Goals
Upon completing the Urban Food Systems specialization students will
- Have proficiency and competency in urban food crop production
- Understand the urban environment and its cultural, political, environmental, and economic roles in urban food systems
- Have grant writing, fundraising, and non-profit management knowledge and skills
- Have community organizing and/or business development skills

HORT 792 - Urban Food Production Practicum (1 cr)
Students will complete a hands-on practicum in an approved urban agriculture setting to gain exposure to a broad range of tasks facing the urban farmer. This includes planning, production and marketing of crops in diverse growing environments and/or systems.

Rec. Pr.: HORT 520 and HORT 560.

When Offered: Fall, Spring, Summer
The Process of the Practicum Course

The expectation of the UFS faculty is that the requirements of the practicum course will be accomplished throughout the student’s time in the UFS program. However, under certain conditions and with the approval of your practicum advisor, the course may be taken over the course of two academic semesters. It is not recommended to try and accomplish the entire course during one semester, particularly since production practices will vary seasonally. Students will need to plan ahead in order to schedule activities at times that are suitable to the growing season as well as the practicum site.

Food production is a difficult task that takes numerous individual skills. During the practicum, each student is required to complete hands-on learning activities in order to develop skills within 12 of the 25 learning objectives outlined in the next section. However, the student is first required to do a self-assessment of the skills they currently have. Students will submit completed practicum portfolios documenting their experience and achievement of at least 12 competencies. An evaluation completed by the practicum supervisor must also be submitted.

For a typical M.S. student that is seeking a thesis, the timeline should look something like this:

1. Perform practicum self-assessment early during first semester.
2. During your first semester as a UFS student, fill out the “Competency Learning Plan” sheets (pg. 11 of this document). Discuss the objectives you plan to complete with your practicum advisor as well as the site supervisor(s).
3. Present your Competency Learning Plan to the UFS Cohort by the end of your first semester (scheduled meetings during HORT 796 will facilitate this).
4. During semesters two and three you should be working on your hands-on activities in order to accomplish your planned learning objectives. Each competency will require at least 16 hours of hands-on experience.
5. Enroll in HORT 792 in the semester you plan to complete the practicum requirements.
6. Complete Practicum Portfolio and present your experience to the UFS Cohort (similar to above, meetings will be pre-scheduled during HORT 796 to facilitate).
Practicum Learning Objectives

In order to accomplish the goals of the UFS program, students will need to gain hands-on experience with basic urban (and peri-urban) practices that lead to agricultural production skills. The goal of the practicum is that students will be able to independently and conscientiously perform many of the tasks required to set up and run or supervise an urban food production site including: accessing land, site assessment, soil testing, design and crop rotation, production planning, planting and crop maintenance, pest control, harvest and postharvest handling, marketing, and record keeping.

Upon completion of the practicum at one or more urban (or peri-urban) farms, students will need to document increased knowledge in at least 12 competencies from 12 of the Learning Objectives listed below. Each student will present their planned learning objectives and competencies by the end of their first semester as a UFS student.

1. **Land Access and Evaluation**: availability, slope, cost, neighborhood, soil type, history, security, probability of contamination from prior use.
   
   *Students will know how to gain access to land as well as evaluate the quality and suitability of available sites for specific types of urban gardens/farms.*

2. **Urban Farm and Garden Design**: bed layout, pathways, surfaces and drainage issues, container gardening, farmscaping, appropriate use of other “hardscaping” materials.
   
   *Students will design a garden from inception for a designated site incorporating all of the concepts listed above.*

3. **Farm and Garden Infrastructure**: Greenhouses, high tunnels and other growing structures (e.g. shade houses), irrigation system infrastructure, dry and cold storage, postharvest handling facilities, educational facilities and interpretative areas.
   
   *Students will design, construct, and maintain farm and garden infrastructure.*

4. **Soil and Nutrient Management**: soil testing and recommendations, amendments, cover crops, fertigation and other fertilizers, pesticide and heavy metal residue mitigation.
   
   *Students will submit a soil test and be able to interpret the test results, and how to apply amendments or perform remediation if needed. Students will evaluate and manage soils and crop fertility.*
5. **Plant Propagation**: vegetable and fruit plant propagation methods, seed-saving, vegetative propagation systems, grafting, propagule storage methods, heirloom/hybrid/GMO differences, sourcing.
   
   *Students will practice a variety of vegetable and/or fruit plant propagation methods.*

6. **Production Planning**: crop rotation, whole farm planning, crop production planning, market forecasting, greenhouse and transplant production planning, labor forecasting.
   
   *Students will plan a portion of the farming operation including when supplies, labor, and outputs will be provided from the farm.*

7. **Irrigation**: sourcing, water testing, quantity, quality, distribution systems, methods of application (drip tape, drip hose, overhead, hand watering), access, rain barrels and other catchment systems.
   
   *Students will design a watering system, perform water tests, and understand how to operate and maintain an irrigation system.*

8. **Hand Tools**: for planting, tillage, weed management, harvesting, etc., tool design and safety/kinesiology, maintenance, appropriate tools for size of plot/garden/farm, etc.
   
   *Students will become familiar with a wide variety of hand tools, have a chance to use them, have a list of resources for obtaining tools, and understand pros and cons of contrasting tools and methods.*

9. **Equipment Operation and Design**: small equipment, walk-behind tractors, conventional tractors, implements, excavation equipment, and equipment design.
   
   *Students will be able to operate equipment ranging from small-scale equipment (e.g. tillers and mowers) to tractors and other equipment as well as the safe and proper use of said equipment and implements/attachments.*

10. **Warm-Season Vegetable Crops**: beans, cucumbers, cantaloupe, eggplant, gourds, peppers, pumpkins, sweet potatoes, tomatoes, and other warm-season crops.

   *Students will be competent on the production practices of various warm-season crops (to include planting schedules, planting dates, seeds vs. transplant, harvest intervals, weed control options, etc.).*

11. **Cool-Season Vegetable Crops**: beets, broccoli, cabbage, cauliflower, garlic, kale, lettuce, onion, potato, radishes, spinach, and other cool-season crops.

   *Students will be competent on the production practices of various cool-season crops (to include planting schedules, planting dates, seeds vs. transplant, harvest intervals, weed control options, etc.).*
12. **Perennial Herbaceous Crops**: asparagus, herbs and other specialty culinary crops, rhubarb, etc.

   *Students will be competent on the production practices of various herbaceous perennial crops (to include planting schedules, planting dates, seeds vs. transplant, harvest intervals, weed control options, etc.)*

13. **Fruit Crops**: tree fruit, brambles, strawberries, specialty fruit (e.g. elderberries, gooseberries, currants, etc.) and other fruit crops.

   *Students will be competent on the production practices of various fruit crops (to include appropriate planting dates and methods, pruning regimes, pest management strategies, harvest protocols, life-cycle and other attributes necessary for successful planting and management).*

14. **Integrated Pest Management (IPM)**: pest identification, monitoring and assessing pest numbers and damage, management guidelines, pest prevention, and pest control.

   *Students will practice IPM principles and practices as part of a crop production plan.*

15. **Weed Management**: weed identification, control methods, herbicide damage.

   *Students can identify common weeds and/or make appropriate management decisions to minimize crop damage due to weeds.*


   *Students can identify damage from common wildlife and make appropriate actions to reduce risk of wildlife damage and/or contamination.*

17. **Harvesting and Postharvest Handling**: maturity stage recognition, harvesting methods, handling, food storage, drying, curing, and packaging.

   *Students understand optimal harvesting stage, efficient methods for harvesting, proper handling methods, and storage for a variety of fruit and vegetable crops.*

18. **Farm-to-Fork Food Safety**: food safety plan, risk assessment, mitigation strategies, on-farm safety procedures, traceability, certification programs (e.g. GAPs vs. Primus).

   *Students will write a food safety plan and be familiar with on-farm practices related to good agricultural practices.*

19. **Protected Crop Production Systems**: greenhouses, high tunnels, cold frames, low tunnels, row cover, plasticulture systems, etc.

   *Students will know the practices associated with protected crop production as well as their costs and benefits.*
20. **Permaculture and Other Production Systems:** swales and other water capture systems, diversified crop production, food forests, mulch-based systems, hugelkultur, etc.  
   *Students will design and implement permaculture practices and be aware of their costs and benefits.*

21. **Minimum Tillage Production Systems:** strip-tillage, no-till systems, deep bedding, no-till equipment, crop benefits, disadvantages, etc.  
   *Students will practice the methods associated with minimum tillage systems and be aware of their costs and benefits.*

22. **Marketing:** retail vs. wholesale markets, market displays, pricing, CSAs, food hubs, alternative distribution systems, sales, what to do with non-marketable crops, etc.  
   *Students will assist with the marketing of crops, understanding in detail the pricing, display, set-up, marketing costs, etc.*

23. **Record Keeping and Finance:** financial record keeping, organic certification records, taxing, cash flow analysis, enterprise budgets, and crop profitability.  
   *Students will have experience with a record keeping system for a farm/garden.*

24. **Staff and Volunteer Management:** staff scheduling, hiring, delegating effectively, recruiting, mentoring, managing in difficult situations, termination, etc.  
   *Students will understand the basic requirements of recruiting staff and volunteers, managing them effectively and efficiently, and dealing with difficult personnel situations.*

25. **Other Possible Practicum topics:** students are encouraged to pursue one or more special topics as learning competencies in addition to the general topics listed above. Below are listed some of the possibilities, but students may suggest others as needed. Special topics must be approved prior to beginning the practicum. Examples include:  
   - crop-livestock integration  
   - whole farm planning  
   - farm financing (start-up)  
   - farm energy use and alternative energy  
   - aquaculture/aquaponics  
   - livestock  
   - bee-keeping  
   - mushroom cultivation
Practicum Site Selection

The practicum should be carried out at one or more urban and/or peri-urban food production sites and students are encouraged to conduct hands-on learning activities (at least four) at agencies, gardens, and/or commercial farms outside of KSU. Practicum advisors should consult the section of this manual titled “Selection of Practicum Sites” (pg. 10) for more information regarding the expectations of sites where a practicum experience can be performed. It is critical to remember that as an M.S. student at Kansas State University, your actions and behaviors reflect on the program as well as the university. Therefore, it is extremely important to maintain good professional conduct when working at, and interacting with, outside private and public organizations. Clear communication about expectations and following through on the commitment made to that agency is the first step in developing a strong professional network. The following steps can be a guide to selecting a site in which to conduct a hands-on learning experience.

1. Identify potential practicum sites and discuss with your practicum advisor to confirm your choices as acceptable sites.
2. At least four competencies must be met at non-KSU sites, which could include a community garden, commercial farm, or other urban/peri-urban food production/distribution site.
3. Students are also encouraged to perform practicum activities at HNR research stations including: the Willow Lake Student Farm, Olathe Horticulture Research and Extension Center, Haysville Horticulture Center, and Chetopa Research Center.
4. Obtain permission from the site(s) approved by your practicum advisor. Discuss the following considerations that are listed below as well as site supervisor responsibilities associated with being a host site for your practicum.
   • Students are encouraged to work with host site(s) to determine suitable activities that will gain experience in the areas listed above well before the activities are performed.
   • Students will need to complete hands-on activities required to accomplish your learning objective at the site.
   • Students will need to provide documentation of how hands-on activity led to increases in knowledge for each competency
   • The site supervisor will need to provide feedback to your practicum advisor at the end of your hands-on activities.
Participant Roles

1. **Student**
   The student is responsible for all aspects of the practicum course (self-assessment, learning plan, hands-on activities, portfolio). This includes initiating and maintaining open communication with practicum host sites as well as their practicum advisor. In addition to being learners, students serve as an informal bridge between the university and the practicum site. It is critical to maintain a professional and productive relationship with the host site.

2. **Practicum Advisor**
   Assists the student with the competency learning plan as well as placement at the practicum site(s). They are available as a consultant in the event of a placement issue. The practicum advisor will be responsible for final evaluation of the portfolio and documentation, and will assign a grade or otherwise document completion of the course.

3. **Site Supervisor**
   The practicum site supervisor is the agency/garden/farm-based staff member who is responsible for guiding the student’s applied educational and practice experience at the practicum site. The practicum supervisor is responsible for student supervision and education (related to hands-on activities), review of work, and providing feedback to the practicum advisor.

Participant Responsibilities
In order for the practicum experience to be successful in meeting its educational function, a great deal of cooperation is essential between all concerned parties. The following expectations and responsibilities have been outlined as a guide for the University, the participating site/agency, practicum advisor, and the student.

1. **The Student**
   a. Undergoes self-assessment in the context of the learning objectives provided.
   b. Communicates with practicum advisor to identify areas where the student would like to increase their expertise by conducting hands-on activities.
   c. Completes a Competency Learning Plan, which delineates learning objectives as goals and includes time frames for completion and strategies for accomplishment and evaluation.
   d. Keeps a journal documenting and discussing experiences and activities.
e. Accomplishes the tasks pre-determined by the Competency Learning Plan and documents activities by providing the practicum advisor with written updates or by posting activities on the Urban Food Systems Facebook Page.

f. Documents the accomplishments of the learning plan by illustrating increased expertise in a given learning objective based on their experience.

g. Respect the individuality and confidentiality of the agency. Professional conduct is expected at all times.

h. Become knowledgeable about the agency and its role in the community.

i. Utilize the supervision experience to further professional growth including knowledge and skill development in urban agriculture.

2. Practicum Advisor
   a. Assists student with development of the Competency Learning Plan
   b. Participates with the student and the agency in placement selection.
   c. Serves as a liaison to the site supervisor.
   d. Develops, with consultation from students and agencies, guidelines and expectations for the practicum documentation.
   e. Takes the responsibility for the final grade in consultation with the site supervisor and student.

3. The Practicum Host Agency, Garden, or Farm
   a. Provides an on-going diversity of tasks related to the development of (urban) farming skills.
   b. Provides a meaningful educational experience to the student.
   c. Provides a qualified staff member who will act as the student’s site supervisor.
   d. Allows opportunity for the student to experience a range of (urban) farming methods.
   e. Provides an opportunity to learn about the agency and its linkage with the community.

4. Site Supervisor
   a. Conducts on-site training and supervision of the student’s activities
   b. Should be knowledgeable about specialty crop fruit and vegetable production, preferably in an urban or peri-urban agriculture context.
   c. Provides meaningful assignments that are appropriate to the student’s skills and are in accordance with the student’s learning plan.
   d. Provides ongoing feedback for the student.
   e. Complete and submit an evaluation of the student to the practicum advisor.
   f. Provides an exit interview with the student to discuss the experience and the student evaluation.
Selection of Practicum Sites

Expectations of Agency/Farm and Practicum Setting
The selection of an agency as a practicum site is based on criteria related to the agency's commitment to a shared responsibility for professional education and expertise of staff. The specific criteria for selecting practicum settings include the following:

1. An actual farm or garden site within which the student will work.
2. The presence of a solid commitment by the owner/administrator and staff to provide professional, educational learning opportunities in cooperation with the Kansas State University Urban Food Systems graduate program.
3. An agency staff member with a minimum of two years’ experience in (urban or peri-urban) agriculture who agrees to act as the site supervisor for the student.
4. The willingness by participating personnel to provide students educationally-guided experiences as contrasted to indiscriminate odd-job assignments or limited observations.
5. The ability and willingness of the agency to provide experience gaining “hands-on” skills and problem-solving experience.
6. The availability of staff that is willing and able to devote time to a student, in addition to their normal workload. As a rule of thumb, agencies are expected to provide at least an average of 30-60 minutes of focused educational time per learning competency, not including regular supervision.

Site Supervisor Criteria
The site supervisor is the person responsible for providing education to the student as well as feedback to the practicum advisor. The urban food systems program has established the following criteria for approval of persons as practicum site supervisors:

1. Two years’ experience in (urban or peri-urban) agriculture.
2. Recommendation of the agency in which the site supervisor is employed.
3. Approval by practicum advisor.

Examples of Sites That are Approved for the Practicum:
- Urban and peri-urban commercial farms
- Community and communal gardens
- Not-for-profit agencies growing food
- Other NGOs growing food (restaurants, hospitals, schools)
- Research stations and educational/training farms and gardens
- Municipalities (e.g. cities, counties) growing food
- Others as approved by practicum advisor
**Student Competency Learning Plan**

By the end of the first semester in the UFS graduate program, the student needs to complete a Competency Learning Plan for each of the 12 learning objectives (see pg. 3) where they plan to gain skills through hands-on experience. It's important for the students to recognize and work in areas where they need experience while developing specialty skills that they may be able to identify as specific expertise, or set of strengths upon completion of the practicum. The goal of the Urban Food Production Practicum is to gain exposure to a broad range of tasks facing the urban farmer and develop specific skills that are required to complete some of these tasks.

**Practicum Competencies**

The practicum competencies can best be described as individual skills that are identified by the student and the practicum advisor as standards for achievement.

The competencies should assist the student and practicum supervisor in identifying hands-on learning activities that are consistent with the goals of the practicum and fall within the learning objectives outlined above. The competencies are the result of specific activities that the practicum advisor, student, site agency and supervisor have agreed upon to be completed as part of the practicum. The learning strategies utilized to gain specific competencies should be described as specifically as possible and reflect the learning objectives as listed earlier in this document.

For each competency that you plan to document, please complete a Competency Learning Plan at the end of the first semester in the UFS graduate program. (Note, 12 are required, but students can fill these out for more than 12 in case things change during the course of study).
**Student Competency Learning Plan** – Complete for each competency

1. Competency title, learning objectives and activities (from list provided)

2. Prior Experience.
   a. What is your prior knowledge in this area? (Use the rating system 0 to 5 provided below).

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No prior knowledge in this area.</td>
</tr>
<tr>
<td>1</td>
<td>Minimal prior knowledge.</td>
</tr>
<tr>
<td>2</td>
<td>Some prior knowledge, but unable to perform this activity without assistance or advice.</td>
</tr>
<tr>
<td>3</td>
<td>Somewhat familiar with this area, have performed before, but would not be comfortable performing independently.</td>
</tr>
<tr>
<td>4</td>
<td>Could perform this task independently, but would not be able to advise or supervise.</td>
</tr>
<tr>
<td>5</td>
<td>Familiar with this area, could perform independently, and advise and supervise others.</td>
</tr>
</tbody>
</table>

   b. Where and when did you obtain this experience?

c. About how many hours were spent learning this material?

d. What were the specific activities that you performed in this area to gain competence?

3. What do you see as the learning opportunities for you in this competency at your practicum placement site?

4. What are your *specific* learning goals for this competency at this site?

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(Note: complete 1-4 above before your placement. Complete the remainder during or after your return from your practicum placement. Review statements 1-4 above with both your practicum advisor and your site supervisor before you begin).
5. About how many hours per week or total hours over the season did you spend working on this competency?

6. What *new* knowledge was gained? (short summary, paragraph or two summary).

7. Provide documentation or demonstration of the knowledge gained and your current competency level. Documentation may take the form of a drawing or diagrams, (for example of an irrigation system installed), a series of photographs, or a narrative explaining how you accomplished the learning objectives and tasks.

8. How would you rate yourself now using the 0-5 scale above? Do you feel that this practicum experience allowed you to gain proficiency at the level required for your future career objectives in urban agriculture? Why or why not? (Note: unless there are extenuating circumstances, a “4” level is expected as a minimum score for each of the 12 competencies).

**Note:** Students are advised to complete the learning plan as they address each specific competency rather than waiting until the end of the practicum experience. After you have written up the documentation for your portfolio, please ask your practicum advisor to comment on each of the 12 competencies. See attached sample form for your use. Another page will be added for your site supervisor(s) to comment on individual competencies and the overall portfolio.
Documenting Learning Strategies and Activities

Clearly written learning strategies and activities in the agreement add structure to the student’s practicum efforts, individualize the experience, and delineate the process of evaluation. Learning Activities/Tasks enable a student to clearly demonstrate the stated outcome measures. Well-stated learning strategies are task/skill specific and assist in critical performance review. The student and practicum advisor will work together to tailor these activities more specifically to meet individual student learning needs and resources provided by each host site.

Writing the Competency Learning Plan

1. Students
   a. Review the listed competencies.
   b. Review the expected outcome statements and rating scales. This tool will be used as part of your final evaluation and can indicate pre/post measure of growth if rated at the beginning of practicum and during the final evaluation.
   c. Make a list of the skills and knowledge that you would like to develop during the practicum. This list may include skill deficits as well as skills and knowledge that you already possess but would like to develop further.
   d. Pare the list down to a manageable (strategies/activities/tasks) size. Keep in mind career objectives, host site availability, past work and academic experience, which may be applied to the field practicum.
   e. Edit the shortened list and begin to tailor the activities to fit individual learning needs. Use the following guidelines:
      i. Be specific. Avoid global or general statements. Describe learning activity in terms that can be observed, evaluated or measurably achieved.
      ii. Write simple. It is not necessary to include jargon or buzz words.
      iii. Use examples if it will help reader understand the intent.
      iv. Learn to condense material (putting the emphasis on quality not quantity).
   f. Strategies and activities often reflect a process which can be broken down into a number of smaller activities or steps.
   g. When possible, assign target dates for the completion of learning activities. Be specific for ways in which the outcomes can be evaluated.

2. Practicum Advisor
   The writing of the learning plan is the responsibility of the student. However, the identification of learning strategies and activities cannot be accomplished without your direct comment, participation and orientation of the student to learning possibilities within the agency or host site. The goals and task headings of the learning agreement
are designed to facilitate direction, learning process, exposure to various fields of practice and specificity in performance and consequently, evaluation. A defined strategy or activity should be considered as an incremental step in the student’s development of knowledge and skill.

**Practicum Portfolio Requirements**

At the end of the semester in which the student is enrolled in HORT 792, they will be required to submit a portfolio documenting the competencies gained. One of the best ways to document competency is to teach that skill to others. Therefore, students are required to provide four “deliverables” as part of their practicum portfolios. Deliverables include written publications, videos, podcasts, webinars, websites, or other educational materials that are approved by the practicum advisor and Urban Food Systems faculty. Each deliverable should explain how to perform a particular task or set of management practices that are relevant to urban agriculture.

**Examples of Deliverables**

- Two-page written publication explaining how to accomplish a task within the given competency including at least five pictures demonstrating a skill or task.
- 3-5 minute “how-to” video outlining the basics of a specific production practice
- 20 minute webinar (live or pre-recorded) explaining how to conduct a task
- 4-10 page website outlining a set of practices or specific skill

**The practicum portfolio should include the following sections:**

- Student self-assessment
- Competency learning plan for 12 competencies
- Four deliverables based on knowledge gained
- Evaluation by site supervisor(s)
- Evaluation by practicum advisor