

2017 Progress update on Goals and Targets identified in the campus Tree Care Plan, developed in 2016 for Shawnee State University

The following black bulleted text reflects the campus tree care plan developed and submitted for initial recognition of Shawnee State University as a Tree Campus USA in 2016. The Blue text below each bullet summarizes the progress made during 2017.

1. Goals and Targets

- The perennial target for the SSU campus will be to increase the diversity of tree species on campus while also increasing the canopy coverage. A complete inventory of all campus trees began during 2011 with the ultimate goal of developing an interactive map that can be used for management and education. A 'dot map' and corresponding index was developed as part of an undergraduate research project by a student. Every other year (e.g. 2013, 2015) the biology Field Methods class conducts a random sample of campus trees and records vital statistics such as height and DBH. These data allow for monitoring of long-term campus tree growth and health. The current species list for all woody plants on campus is attached as an appendix at the end of the tree care plan.

During fall of 2017, the Field Methods class once again conducted a sample inventory of the campus trees to update the GPS coordinates and associated database. Growth, condition, abnormalities, additions, and removals of trees were noted and recorded. Additionally, the committee discussed and agreed to updating a numbering/ labelling system for all trees on campus to be completed during spring of 2018 using durable, plastic tags. This will allow more reliable data to be collected and better communication regarding specific trees and their health/ care.

- SSU is expecting to release its next Campus Master Plan for the future of university planning in 2017 (last revision in 2008). The campus tree team is dedicated to promoting the campus tree plan to be incorporated as an integral part of this guiding document for the future of SSU, especially regarding tree maintenance, planting, removal, and protection. This has the potential to influence the landscape of SSU with regard to trees for decades.

During 2017, SSU began implementing several aspects of the university's Strategic planning process, including the beginning of the new Facilities Master Plan. The campus Tree Care Plan developed by the Tree Care Team was provided to leadership involved in this process.

- During each offering, the Practical Horticulture class will actively promote health of campus trees through pruning efforts. This will serve as an authentic, experiential learning experience for SSU students to become interested in urban and landscape forestry and tree maintenance. These practices will continue to be integrated into the curriculum of applied science courses at SSU.

In spring of 2017, 20 undergraduate students enrolled in the Practical Horticulture course. As a necessity to complete the course, students must participate in several service learning activities, including starting tree seedlings, tree planning, and tree pruning. Further, the Department of

Natural Science revised the curriculum of their B.S. Biology degree to include the Practical Horticulture course as a Botany elective for the degree (formerly, it was only a general biology elective). The course also counts under the General Education Program, which applies to majors across campus. This course was also included in the curriculum of the new Botany Minor, which was approved in 2017 to be included in the academic catalog the following academic year.

- A perennial goal of the SSU facilities department and tree care team is the reduction of non-native, invasive and/or noxious tree species from the campus grounds. As possible, invasive species which are already in place as landscape trees will be phased out and replaced with trees to encourage overall species and ecological diversity.
- In recent years, SSU has added many new properties to its holdings. Many of these properties are vacant or otherwise overgrown. Continued efforts will be made to further reduce invasive vegetation on campus owned lots (including, but not limited to, Amur Honeysuckle, Tree-of-heaven, and multiflora rose) through the use of herbicide treatment regimens and manual removal, as necessary. The campus tree inventory will be updated to reflect changes and additions on an on-going basis.

In addition to efforts of the facilities management crew to remove invasive woody plant species, a great deal of effort was exerted by high school students in the Upward Bound and Upward Bound Math-Science Programs during the summer of 2017. Approximately 100 students enrolled in the program contributed each 3 hours of community service related to tree planting and removal of invasive trees/ shrubs on some of SSU's outlying properties.

- To combat the impact of Emerald Ash Borer, efforts have been made and will make efforts to continue to treat (using Imidacloprid) the three mature White Ash trees on campus. Future treatments will include expanding the regular regime to include any smaller ashes, fringe trees, or lilacs (all Oleaceae) on campus.

Vigilance and monitoring of potentially affected species has continued with treatment applied as necessary.

- To mitigate the effects of storm water runoff, a settling basin has been constructed behind a unit of university owned housing and the soccer complex. Native vegetation (including wildflowers, shrubs, and trees) have been encouraged to grow in this area. Increased vegetation would have many benefits to reduce erosion and runoff of contaminants into the stream.

During early summer 2017, a great deal of Poison Ivy (*Toxicodendron radicans*), Multiflora rose (*Rosa multiflora*) and Japanese Honeysuckle (*Lonicera japonicum*) were removed from the settling basin area to allow space for more desirable species.

- A concerted effort will be made to add new species to the campus landscape which will augment the trees currently in place with respect to ecological, historical, and cultural significance.

During 2017, the following species were added to the campus tree list due to plantings, property acquisition, and detailed census: Sassafras (*Sassafras albidum*), Spicebush (*Lindera benzoin*), Pecan (*Carya illinoensis*), Shumard Oak (*Quercus shumardii*). Seed stock were collected during fall 2017 for

use in the spring 2018 Practical Horticulture course of the following species: Post Oak (*Quercus stellata*), Willow Oak (*Quercus phellos*), Southern Red Oak (*Quercus falcata*), Shumard Oak (*Quercus shumardii*), Peach (*Prunus persica*, heirloom cultivars), Pecan (*Carya illinoensis*), Buttonbush (*Cephalanthus occidentalis*), PawPaw (*Asimina triloba*), Butternut (*Juglans cinerea*).

- We also hope to include additional interested parties as members of our campus tree care team during the 2017 calendar year.

2017 saw the retirement of long-time campus tree advocate, Dr. Bob Deal, from the faculty. Dr. Deal has agreed to remain active in his support of tree care on the campus of Shawnee State University as a community member. The Department of Natural Science also developed a new Botany minor for the upcoming academic year, which by nature includes several courses involving trees on campus as part of the curriculum. It is hoped that the interest from students in this minor and in tree related coursework in general (e.g. Fall 2017 saw a record enrollment of students in the Dendrology course) will carry over to interest in Tree Campus team initiatives. Further, contacts have been made by team members with other groups (i.e. the Portsmouth Tree City board) to explore greater collaboration on events and activities involving trees on campus and in the surrounding community. This work is poised to continue with great strength in 2018.

Committee Members

Student:

- Tyler Sherwood, Undergraduate Student, SSU sherwoodt@mymail.shawnee.edu

Faculty:

- Dr. Logan Minter, Assistant Professor of Biology, SSU lminter@shawnee.edu
- Dr. Andrew Napper, Professor and Chair, Dept. of Natural Sciences, SSU anapper@shawnee.edu

Facility:

- Butch Kotcamp, Director of Facilities, SSU bkotcamp@shawnee.edu
- Murray Smith, Grounds Manager, SSU msmith@shawnee.edu

Community:

- Chris Bedel, Director, Edge of Appalachia Preserve CBedel@cincymuseum.org
- Dr. Bob Deal, Retired Professor of Biology dealdr937@msn.com



U N I V E R S I T Y

Observance of Arbor Day:

Shawnee State University celebrated the 2017 Arbor Day in two instances. On April 27 (State Arbor Day in Ohio), SSU students and faculty made a presentation to the Regional meeting of Garden clubs at Shawnee State Park Lodge. At the meeting, seedlings of Sawtooth Oaks and Panicked Golden Rain Tree were given away. These seedlings were started by students enrolled in the horticulture course as part of a service learning activity. The organization provided a \$100 honorarium to the campus tree committee, which was used to purchase a tree for campus.

SSU students and faculty joined the City Tree Board of Portsmouth the following Saturday, April 29th, for a joint celebration at Tracy park in Portsmouth. At the event, additional Sawtooth Oaks and Panicked Golden Rain Trees were given away to members of the public to promote street and urban tree plantings in the city. A Screenshot from the SSU Communications office, below, shows SSU students and faculty distributing trees at the event. Additional documentation (photographs) appear below, and as an attachment in the form of an e-mail from the City Tree Board showing SSU's participation on the program.

The SSU Campus Tree Team will continue to work with other entities on campus to plan and conduct a recognition event for Arbor Day each year in the future.



SSU Campus Tree Committee members: Tyler Sherwood (student), Dr. Bob Deal (faculty)



SSU Campus Tree Committee member, Tyler Sherwood (student),



Community and Service Learning:

Student volunteers from the Department of Natural Sciences contributed over 20 hours of time in preparation (including student representative to the campus tree committee) for tree seedling give-aways during spring 2017, in close proximity of Arbor Day. In addition to the preparing tree seedlings for give-away events, our students have been engaged in several other service learning projects throughout the 2017 year. Several biology courses include elements of experiential learning which also contribute service to the campus landscape. High school students enrolled in Upward Bound programs on campus also contributed in multiple ways.

1. Practical Horticulture Course:

An integral part of this course (offered during Spring semesters) is the instruction and application of proper tree planting, mulching, and pruning techniques. In spring 2017, 20 students enrolled in this course logged over 150 combined hours of service, contributing to the landscape aesthetic of campus with gaining an authentic learning experience. The course description (from University catalog) is shown below, and the course syllabus is attached as an appendix.

• [BIOL 2253 - Practical Horticulture](#)

[\[Print Course\]](#)

BIOL 2253 - Practical Horticulture
Credits: 4

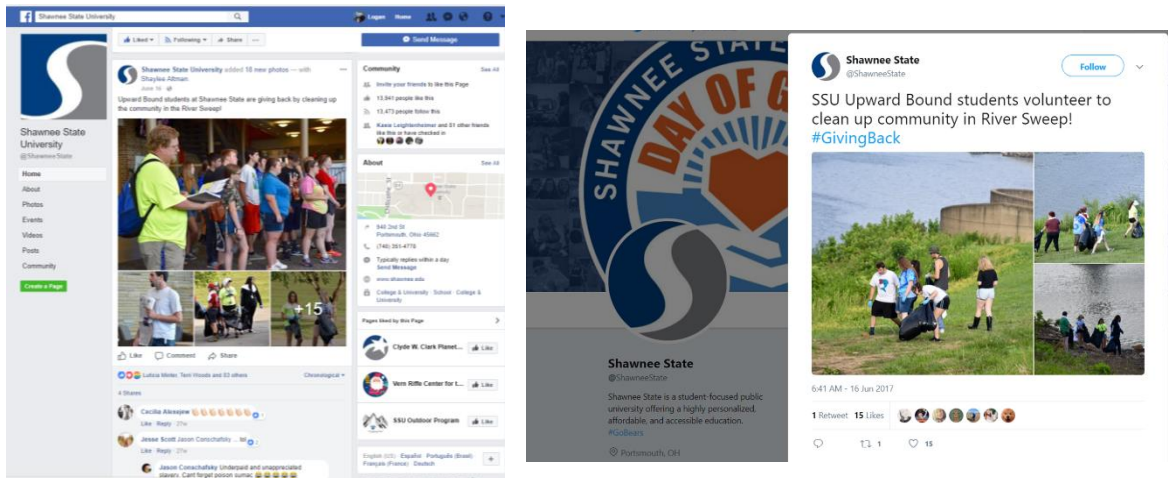
An introduction to the science of practical horticulture with emphasis on useful skills and techniques related to plant propagation, selection of suitable ornamental plants for the habitat at-hand, planting and maintenance of plants in home, greenhouse and the landscape, fundamentals of landscape design, and basics of insect and disease control.
lecture hours 2 lab hours 4 Course/Lab Fee \$ General Education Program Course GEP

2. Other Plant Science Courses (Dendrology, Plant Anatomy, Plant Taxonomy, etc.)

For study of plant germination and seedling growth, tree seeds (e.g. oaks, redbud, ginko) are used as educational models in the teaching greenhouse. Upon course completion, surplus tree seedlings are either taken home by students or made available to the campus community for planting, at no charge. During fall 2017, students enrolled in the Biol 2252, Dendrology, course assisted in collection of seeds of several tree species to be used during the following spring semester as source seed for tree seedlings to be started and given away by the practical horticulture course as part of the campus Arbor Day celebration being planned for spring 2018. Species were selected in particular to emphasize those that are locally uncommon [Shumard Oak (*Quercus shumardii*), Post Oak (*Quercus stellata*), Willow Oak (*Quercus phellos*), Southern Red Oak (*Quercus falcata*)], horticulturally significant [Peach (*Prunus persica*, heirloom cultivars), Pecan (*Carya illinoensis*)], native alternatives to commonly planted invasives [Buttonbush (*Cephalanthus occidentalis*, PawPaw (*Asimina triloba*)], and ecologically threatened [Butternut (*Juglans cinerea*)].

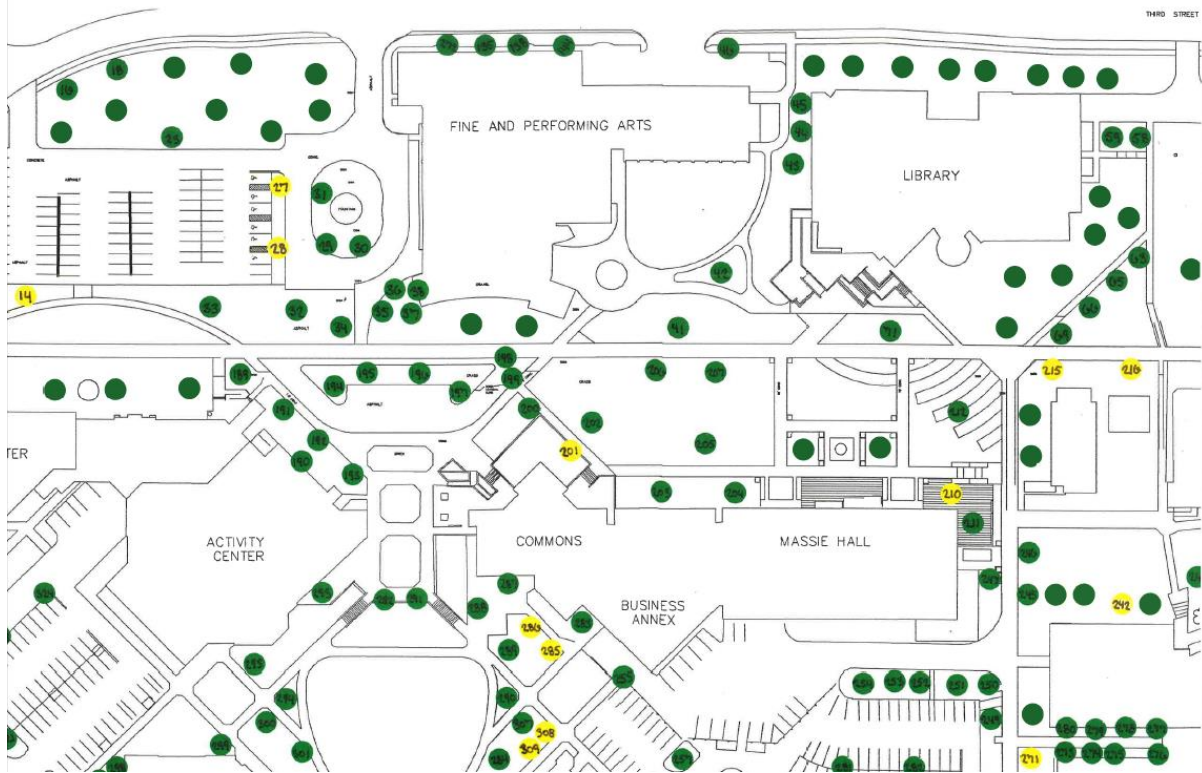
3. Upward Bound and Upward Bound Math-Science:

High school students enrolled in the Upward Bound and Upward Bound Math-Science Programs assisted the facilities crew at SSU by removing invasive woody plant species during the summer of 2017. Approximately 100 students enrolled in the program contributed each 3 hours of community service specifically related to tree planting and removal of invasive trees/ shrubs on some of SSU's outlying properties. This is in addition to over 700 volunteer hours (not included in total) provided by these students in cleaning up litter from the riparian woodland adjacent to campus, trail maintenance at Shawnee State Forest/ Park, and a BioBlitz at Hanging Rock Nature Preserve.



4. Field Methods Course and Undergraduate Research

The campus tree inventory of SSU formally began in 2011 with a database being created including the species and GPS coordinates of all trees on campus at the time by students enrolled in the Field Methods course. These data were used to create the following 'dot map' showing the location of each tree by a student enrolled in undergraduate research. This map and corresponding database were ground-truthed and updated by the Field Methods classes of 2013 and 2015. Additionally, height and DBH data were recorded for all trees in 2013 and a sample in 2015. During fall semester of 2017, students continued collection of biometric data from the trees, allowing for a long-term picture to emerge of tree health and growth. This will continue to provide site specific guidance to the tree team in the future as to which species thrive best under the conditions of campus.



PRACTICAL HORTICULTURE

Biology 2253

Spring 2017

COURSE SYLLABUS

Hours of Credit:

Four Semester Credit Hours

Class Time & Location:

MW 2:00 – 4:50pm. Mas. B30,
Greenhouse, and Local Landscapes

Course Description:

An introduction to the science of practical horticulture with emphasis on useful skills and techniques related to plant propagation, selection of suitable ornamental plants for indoors and

outdoors,

planting and maintenance of plants in home, greenhouse, and the landscape, fundamentals of

landscape

design, and the basics of insect and disease control. In addition to serving as an elective course for the

B.S.

in Biology the course meets scientific reasoning requirements as a GEP course via learning activities that require critical analysis of diverse information, applied learning in selected areas of horticulture, and development of a meaningful presentation and learning activity for classmates and instructor.

Instructor:

Dr. D. Robert Deal, Professor of Biology

Office Hours & Location:

**MW 12:00-1:00 ; T 3:00-4:00;
other times by appointment.**

Telephone/email:

351-3486 [SSU Ext. 3486]

bdeal@shawnee.edu

Text:

None required. General and specific topics in horticulture are so well covered by periodicals,

books

and the internet that with modest effort any

student

of horticultural science can obtain all the

information

s/he needs beyond that provided in class.

Things you will need: Notebook and folder for handouts.
Clothing/gloves and shoes suitable for field work.
Small illuminated area at home to grow and observe plants through the course of the semester.
Selection of and perusal by each student of two or three publications relating to horticultural areas of special interest to the student.

II. Overall Course Objectives: During the semester the student will:

- Become familiar with the several specialized fields of horticulture and be conversant with information and skills that a person working in each of those fields must have.
- Learn to recognize and identify the structural and functional components of horticultural plants and distinguish among the several growth forms of these species.
- Identify major groups of horticultural plants and crops, trees and shrubs and describe basic requirements for their culture and/or methods of propagation, growing, maintenance and marketing of each of these groups.
- Learn and use commonly accepted techniques and approaches to/for/of: growing horticultural plants and trees from seed, asexual propagation, growing of greenhouse and bedding plants, maintenance of selected indoor and outdoor horticultural species, landscape planning and installation of landscape species, and pruning of woody ornamentals.
- Gain comprehension of the basics of plant pathology and pest control as these relate to selected areas of horticulture and arboriculture.
- Develop and direct a class learning activity on a selected (instructor approved) topic drawn from one of the horticultural specialties (this to include an introductory presentation that uses at least one form of visual support).

III. Course requirements of each student:

A. This is an elective course; it is expected that only those persons interested in working with plants in a practical, 'hand-on' way will register for it. Because of the strongly applied emphasis of the course, regular attendance is a must. Chronic absenteeism will result in dismissal; four or more unexcused absences will result in dismissal, or, if past the drop date, and 'F' in the course.

B. . Participation in and completion of **all** class activities (see outline of course learning activities).

Note: Failure to complete all major activities is grounds for instructor to assign a final grade of 'F' for the course. If you have a personal problem or emergency be sure to see me so that, if possible and reasonable, I can make adjustment, assign make-up work, etc. so that the above fate doesn't befall you. **Documentation to establish validity of excuse may be required. Assignment deadlines are enforced.**

C. Clean-up: It is totally your responsibility to clean up your work area when you stop or complete an activity. There will be a course-point reduction for each occasion when you ignore this requirement.

D. Select (with instructor approval) a specific horticultural topic to research and develop an oral/visual presentation that leads into some class involvement and learning activity that reinforces and/or supplements the preceding presentation (this also instructor approved).

E. Because so much of the course involves working closely with others, students and instructor, each person must be cooperative and consider the needs of others. Helping each other with classroom/greenhouse/outdoor activities makes everything more fun for all.

F. As instructor of this sort of course I must have option to announce policies or regulations to fit circumstances as they arise.

(2)

G. Shawnee State University ADA Statement: Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 require Shawnee State University to provide reasonable academic adjustments or accommodations for students with documented disabilities which would not compromise the integrity of the academic program. Examples of documented disabilities include physical, psychiatric, and/or learning impairments that substantially limit one or more major life activities of the student. Students seeking academic adjustments or accommodations must self-identify with the Coordinator of Disability Services, Student Success Center, Massie Hall, 740-351-3276. After meeting with the Coordinator, students are encouraged to meet with their instructors to discuss their needs, and if applicable, any lab safety concerns related to their disabilities.

Note: In regard to the above: if you cannot take part in the greenhouse or, especially, outdoor activities, such as pruning of young trees, you should not take the course. There are no suitable alternatives for many of these activities.

IV. Evaluation and Course Grading:

A. Four to eight course activities carrying variable course points (CP) Course Points:
{10 - 75} that may or may not be announced in advance. Grade on each
is based on the quality of your performance. Ca: 150 - 300

B. Early semester student presentation (Ppt. or something else).	75
C. Five to seven 25 CP quizzes over specific topics.	125 - 175
D. Student developed presentation on selected horticultural topic [75 C.P. - Oral/visual presentation; 75 C.P. class learning activity]	150
E. Final Exam [Over provided learning objectives]	<u>150</u>
Total Course Points:	650 - 850

V. DETERMINATION OF FINAL GRADE

Student's final grade will be based upon the percentage of total course points earned.

Letter grade will be assigned as follows: 94-100% = A, 90-93.99% = A-, 87-89.99% = B+, 83-86.99% = B, 80-82.99% = B-, 77-79.99% = C+, 73-76.99% = C, 70-72.99% = C-, 67-69.99% = D+, 63-66.99% = D, 60-62.99% = D-, below 59.99% = F

**Note: Perfect attendance including no late arrivals will result in up-
grading
by one step in the university grading system (e.g. : 'B-' becomes a 'B')**

VI Course Outline and Tentative Schedule:

Many of the learning activities of the course will be on-going; i.e., we will start something
and follow through on the activity for some period of time. For example, this will include
such as growing tree seedlings and, in the process, recording germination and growth data
(possibly as a C.P. activity). Outdoor activities, especially pruning require good weather,
so we will have to adjust for that factor and be outside over an extended period of time.
See the attached tentative schedule, which necessarily, will undoubtedly change.