



Shawnee State

U N I V E R S I T Y

Campus Tree Care Plan

1. Purpose:

The purpose of this campus tree care plan is to conserve and enhance aesthetic of the landscape of the Shawnee State University. Essentially, the ultimate goal is to turn the campus grounds into an arboretum that will serve as an example for the community of best management practices for landscape trees and urban forests. Specifically, the following goals will guide the activities outlined in the plan:

- Ensure future plantings of trees match species characteristics
- Maximize species and ecological diversity of the campus grounds
- Reduction of invasive tree and shrub species while preventing further introductions
- Conserve and restore naturalized environments , especially riparian zones and settling basin
- Encourage further student interest in landscape trees, urban forests, and the general importance of natural systems
- Serve as an example for the community of best practices for maintaining and managing urban trees

2. Responsibility:

- Execution of the Campus Tree Care plan shall be the responsibility of the Shawnee State University Facilities Department, with support from various entities across the institution.

3. Campus Tree Advisory Team :

- The Shawnee State University (SSU) Campus Tree Advisory Team was established within the university with added guests from the community. Team members shall provide input and guidance to the campus tree care plan on an annual basis. The team will meet at least twice per year to discuss progress and further goals for the campus initiatives. Members will serve on the team for one-year, renewable appointments. The team is comprised of the following individuals for 2016-2017:
 - Butch Kotcamp, Director of Facilities, SSU
 - Dr. Bob Deal, Professor of Biology, Dept. of Natural Sciences, SSU
 - Tyler Sherwood, Student representative, SSU
 - Chris Bedel, Director, Edge of Appalachia Preserve
 - Dr. Logan Minter, Director, Upward Bound Math-Science, SSU
 - Murray 'Mer' Smith, Grounds Manager, SSU
 - Dr. Andrew Napper, Professor of Chemistry and Chair, Dept. of Natural Sciences, SSU

4. Campus Tree Care Guidelines

I. Planting:

- All planting of landscape trees shall follow the local site recommendations from the Ohio Dept. of Forestry and University of Kentucky Cooperative extension program. For balled and burlaped trees, the recommendations by Fountain and Vanek 2012 will be followed for planting and post planting work: <http://www2.ca.uky.edu/agc/pubs/ho/ho91/ho91.pdf>
- Any species which are only available as 1st or 2nd year bare-root seedlings will be initially grown in pots in the greenhouse and/or grown in the biology field research plot for up to two additional seasons prior to final placement.

II. Landscaping:

- All trees in landscape settings (any setting on campus other than naturalized areas (e.g. settling basin) shall have the critical root zones covered with 2-4 inches of organic mulch. All new plantings of trees will be sited based on attributes of particular species that accentuate the landscape and compliment the architecture.

III. Maintenance and removal

- All trees, especially those in close proximity to buildings, sidewalks, and parking lots, shall be inspected on an annual basis for signs of damage or disease. If removal is warranted based on the assessment of the director of facilities and/or tree care advisory team (or delegate), it shall be done using the least invasive and least intrusive methods possible with respect to adjacent trees and vegetation.
- Pruning to promote overall tree health will be conducted as needed and will follow the recommendations provided by the Ohio State University and University of Kentucky Cooperative Extension services in publications "Pruning and Care of Tree Wounds" "Pruning Landscape Trees" and "Care of Woody Plants" <http://ohioline.osu.edu/factsheet/HYG-3311-09>, www2.ca.uky.edu/agc/pubs/ho/ho45/ho45.pdf, www2.ca.uky.edu/agc/pubs/ho/ho101/ho101.pdf
- All mature shade trees and trees adjacent to walkways and parking lots will have lower branches pruned to a height of at least 6 feet to allow line-of-sight for security and safety considerations.
- In the event of catastrophic weather events (i.e. wind, lightning, ice storms, or drought), maintenance and/ or removal of impacted trees will be accomplished by the facilities department, except in the case where a dangerous situation is imminent (i.e. close proximity to utility lines or buildings), in which case professionals will be contracted. To mitigate the impact of destructive weather events, species to be planted will be selected for hardiness and resilience, especially in zones where safety may be most impacted.

IV. Recommended species:

The following species have been identified as suitable targets for inclusion or increase plantings within different identified zones of the SSU campus.

1. Sidewalk and Shade (includes parking lot perimeters):

Zelkova	<i>Zelkova serrata</i>
Sugar Maple	<i>Acer saccharum</i>
Northern Red Oak	<i>Quercus borealis</i>
Southern Red Oak	<i>Quercus falcate</i>
Willow Oak	<i>Quercus phellos</i>
Scarlet Oak	<i>Quercus coccinea</i>
Shumard Oak	<i>Quercus shumardii</i>
Chestnut Oak	<i>Quercus prinus</i>
White Oak	<i>Quercus alba</i>
Yellow Poplar	<i>Liriodendron tulipifera</i>
Dawn Redwood	<i>Metasequoia glyptostroboides</i>
American Yellowwood	<i>Cladrastis kentukea</i>
American Basswood	<i>Tilia Americana</i>
Freeman maple Autumn Blaze ®	<i>Acer x freemanii 'Jeffersred'</i>
Pitch Pine	<i>Pinus rigida</i>
Norway Spruce	<i>Picea abies</i>
Douglas Fir	<i>Pseudotsuga menziesii</i>
White Fir	<i>Abies concolor</i>
Kentucky Coffee tree	<i>Gymnocladus dioicus</i>
Sugar Maple	<i>Acer saccharum</i>
Hickory	<i>Carya spp.</i>
Pecan	<i>Carya illinoensis</i>
Walnut	<i>Juglans nigra</i>
Butternut	<i>Juglans cinerea</i>

2. Confined space (includes traffic islands):

Arborvitae	<i>Thuja occidentalis</i>
Sweetbay Magnolia	<i>Magnolia virginiana</i>
Eastern Redbud	<i>Cercis Canadensis</i>
American Yellowwood	<i>Cladrastis kentukea</i>
Cornelian Cherry	<i>Cornus mas</i>
Alternate leaf dogwood	<i>Cornus alternifolia</i>
Ginkgo	<i>Ginkgo biloba</i>
Washington Hawthorn	<i>Crataegus phaenopyrum</i>
Fragrant sumac	<i>Rhus aromatic</i>
Black Haw	<i>Viburnum prunifolium</i>
Korean Allspice	<i>Viburnum carlesii</i>
Carolina Buckthorn	<i>Frangula caroliniana</i>
Spice bush	<i>Lindera benzoin</i>
Winterberry	<i>Ilex verticillata</i>

3. Settling basin (rainwater/ runoff catchment area)

Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Bald Cypress	<i>Taxodium distichum</i>
Sycamore	<i>Platanus occidentalis</i>
Sandbar Willow	<i>Salix exigua</i>
Yellow Buckeye	<i>Aesculus flava</i>
Winterberry	<i>Ilex verticillata</i>
Red Osier Dogwood	<i>Cornus sericea</i>

V. Prohibited species:

The following species of woody plants are prohibited from future plantings on campus grounds. This list is partially derived from the list of most severely invasive threats to the Ohio Valley, compiled by the Kentucky Exotic Pest-Plant Council (<http://www.se-eppc.org/ky/list.htm>) and Ohio Dept. of Natural Resources (<http://ohiodnr.gov/invasiveplants>) The planting or encouraged propagation of these species on campus grounds will be strictly prohibited. Further, as possible, specimens of these species already existing on campus grounds will be removed and replaced with native or non-noxious alternatives.

<i>Ailanthus altissima</i>	Tree-Of-Heaven
<i>Celastrus orbiculata</i>	Oriental Bittersweet
<i>Elaeagnus umbellata</i>	Autumn Olive
<i>Euonymus alatus</i>	Winged Euonymus, Burning Bush
<i>Euonymus fortune</i>	Winter Creeper
<i>Ligustrum sinense, L. vulgare</i>	Privet
<i>Lonicera japonica</i>	Japanese Honeysuckle
<i>Lonicera maackii, L. morrowi, L. tatarica</i>	Amur, Morrow, Tartarian (Bush) Honeysuckle
<i>Paulownia tomentosa</i>	Princess Tree
<i>Pyrus calleryana</i>	Callery Pear
<i>Pueraria lobate</i>	Kudzu
<i>Rosa multiflora</i>	Multiflora Rose
<i>Hedera helix</i>	English Ivy
<i>Morus alba</i>	White Mulberry
<i>Populus alba</i>	White Poplar
<i>Berberis thunbergii</i>	Japanese Barberry
<i>Rhamnus cathartica, R. frangula</i>	Glossy and Common Buckthorn

5. Protection and Preservation Guidelines

- New construction and renovation should start with planning for existing trees in mind. On the site survey existing trees should be noted, with affected trees being marked. The value of existing trees should be a consideration in the design process.
- All trees within the footprint of the new construction should be removed in the best way possible. Trees in close proximity to the construction that could be impacted should be

evaluated as to the possibility for long term damage and considered for a tree protection zone if it's decided the tree has a substantial chance of making a full recovery.

- Tree protection zones shall be established and maintained for all trees to be preserved in a construction area. A simple barrier should be constructed for each tree or grouping to protect the trunk and root systems out to the dripline. This will reduce root damage from heavy equipment and trucks. Four foot wood, plastic or metal fencing would be suitable. In no case shall the protection zone be less than a radius of 2.5 feet.
- No equipment or vehicles shall be parked, construction materials stored, or substances disposed of or placed within any tree protection zone at any time during clearing or construction of a project. To every extent possible, all site work shall be planned and conducted in a manner that will minimize damage to protected trees from environmental changes such as altered site drainage or any other land disturbance within or immediately adjacent to the critical root zone of the tree. Long term tree health should be considered before there is grading of tree root zones.
- When trenching is to be done for a new construction, it will be done in a way that's the least intrusive to the trees root zone. This should be completed outside the trees dripline whenever possible.

6. 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.
- 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 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.
- 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.
- 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.
- 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.
- 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.
- We also hope to include additional interested parties as members of our campus tree care team during the 2017 calendar year.

7. Tree Damage Assessment- Enforcement, Penalties, and Appeals

- All landscape trees on campus should be assessed on an at least annual basis by the department of facilities and/or members of the advisory team, ideally in early spring. Pruning, removal, and/or replanting should follow the protection measures outlined in the document. Enforcement, remediation, and/or compensation requirements for violations will be at the discretion of the Director of Facilities and/or the V.P. of Finance and Administration.

8. Prohibited Practices

- Consultation with the campus tree care team, or designated representative, is recommended prior to planting of any new trees to assess location, taxonomy, and maintenance concerns.
- No species which are considered to be invasive (see list under section 4-V) are to be planted on campus grounds.
- Any trees to be dedicated should first seek approval from the Director of Facilities and the SSU Development Foundation if funds or donations external to the college are to be employed or solicited.

The following practices are also prohibited by City of Portsmouth, Ohio Ordinances, Chapter 175 (Ord. 1-1998. Passed 1-12-98.), et. al:

I. TREE PLANTING, MAINTENANCE, AND REMOVAL.

(a) Tree Species. The City Tree Commission shall develop and maintain a list of desirable trees for public tree planting in three size classes: small, medium and large. This list will be maintained current and available by the Public Service Department.

(b) Spacing. The spacing of public trees will be in accordance with the three species size classes list. No trees may be planted closer together than the following:

- (1) Small trees - thirty feet;
- (2) Medium trees - forty feet;
- (3) Large trees - fifty feet, except in special planting designed and/or approved by a landscape architect.

(c) Utilities. No public trees other than those listed as small trees maybe planted under or within ten lateral feet of any overhead utility wire, or over or within five lateral feet of any underground water line, sewer line, transmission line or other utility.

(d) Distance from Curb and Sidewalk. The distance trees may be planted from curbs or curblines and sidewalks will be in accordance with the three species size classes list, and no trees may be planted closer to any curb or sidewalk than the following:

- (1) Small trees - two feet;
- (2) Medium trees - three feet; and
- (3) Large trees - four feet.

(e) Distance from Street Corners and Fireplugs. No public tree shall be planted within the clear sight triangle nor closer than ten feet of any fireplug.

(f) Topping. It shall be unlawful for any person, firm or City department to top any public tree, park tree or other tree on public property. Trees severely damaged by storms or other causes, or certain trees under utility wires or other obstructions where other pruning practices are impractical may be exempt from this chapter at the written determination of the Public Service Director/City Forester.

(g) Pruning, Corner Clearance. Every owner of any tree overhanging any street right of way within the City shall prune the branches so that such branches shall not obstruct the light from any street lamp or obstruct the view of any street intersection and so that there shall be a clear space of eight feet vertically above the surface of the sidewalk. Said owners shall remove all dead, diseased or dangerous trees, or broken or decaying limbs that constitute a menace to the safety of the public. The City shall have the right to prune any tree or shrub on private property when it interferes with visibility of any traffic control device or sign, if the property owner fails to adequately restore visibility within seven days after written notice is given to do so.

II. DEAD OR DISEASED TREE REMOVAL ON PRIVATE PROPERTY.

(a) The City shall have the right to cause the removal of any dead or diseased trees on private property within the City, when such trees constitute a hazard to life and property, or harbor insects or disease which constitute a potential threat to other trees within the City. If the property owner fails to adequately correct said hazardous condition within sixty days after written notice to do so.

(b) The Public Service Director/City Forester will notify in writing the owners of such trees, and removal shall be done by said owners at their own expense within sixty days after the date of service of notice. In the event the owners fail to comply with such provisions, the City may

remove such trees and charge the cost of removal to the owners by certifying said charges to the County Auditor for placement upon the tax duplicate for that real estate parcel.

III. PERMIT FOR MAINTENANCE AND REMOVAL OF TREES AND SHRUBS.

(a) Permit Required. No person, except on written order of the Public Service Director/City Forester, shall remove or alter a tree or shrub, in the public right of way, boulevard areas, other public areas, or cause such act to be done by others. This includes all persons engaged in the business of cutting or removing trees or shrubs.

(b) Permit Form Expiration, Inspection. Every permit shall be issued by the Public Service Director/City Forester on a standard form and include a description of the work to be done and shall specify the exact location. Any work under such permit must be performed in strict accordance with the provisions of this chapter. Permits issued under this section shall expire six months after date of issuance. There is no charge for the permit.

(c) Permits to Public Utilities. A public utility may secure an annual working agreement with the Public Service Director/City Forester that gives the utility company authorization to perform necessary removal, trimming, pruning and/or altering any public tree or shrub. The permittee shall adhere to the specifications and standards or workmanship set forth in the permit. The Public Service Director/City Forester shall limit the work to be done to the actual necessities of the utility and may assign an inspector to supervise the work done under provisions of the permit; any expense incurred shall be charged to the utility at the usual City rate.

IV. PROHIBITED ACTS.

(a) Damage to Public Trees. No person shall, without the consent of the owner in the case of a private tree or shrub, or without written permits from the Public Service Director/City Forester in the case of a public tree or shrub do or cause to be done by others any of the following acts:

(1) Secure, fasten or run any rope, wire sign, unprotected electrical installation, or other devise or material to, around, or through a tree or shrub except to secure leaning or newly planted trees.

(2) Break, injure, mutilate, deface, kill, or destroy any tree or shrub or permit any fire to burn where it will injure any tree or shrub.

(3) Permit toxic chemical, smoke, oil, or other injurious substance to seep, drain, or be emptied upon or about any tree or shrub, or place cement or other solid substance around the base of the same.

(4) Remove any guard, stake, or other devise or material intended for the protection of a public tree or shrub.

(5) Attach any sign, poster, notice, or other object on any tree, or fasten any guy wire, cable rope, nails, screws, or other devise to any tree; except that the City may tie temporary "no parking" signs to trees when necessary in conjunction with street improvement work, tree maintenance work, or parades.

(b) Excavations. All public trees near any excavation or construction of any building, structure, or street work, shall be sufficiently guarded and protected by those responsible for such work as to prevent any injury to said trees. No person shall excavate any ditches, tunnels, or trenches, or install pavement within a radius of ten feet from any public tree without written permission of the Public Service Director/City Forester.

V. ENFORCEMENT.

(a) The Public Service Director/City Forester shall have the power to promulgate and enforce rules, regulations and specifications concerning the trimming, spraying, removal, planting, pruning and protection of trees, shrubs, vines, hedges and other plants upon the right of way of any street, alley, sidewalk, or other public place in the City.

VI. PENALTY.

Any person who violates any provision of this chapter or who fails to comply with any notice issued pursuant to provisions of this chapter, upon being found guilty of violation, shall be subject to a fine not to exceed \$500.00 for each separate offense. Each day during which any violation of the provisions of this chapter shall occur or continue shall be a separate offense. If, as the result of the violation of any provision of this chapter, the injury, mutilation, or death of a tree, shrub, or other plant located on City owned property is caused, the cost of repair or replacement, or the appraised dollar value of such tree, shrub or other plant, shall be borne by the party in violation. The value of trees and shrubs shall be determined in accordance with the latest revision of "A Guide to the Professional Evaluation of Landscape Trees, Specimen, Shrubs, and Evergreens", as published by the International Society of Arboriculture. The parent or parents of any unemancipated minor child who violates this chapter may also be held liable for the cost of replacing or repairing such damaged or destroyed property.

VII. DESTRUCTION OF SHRUBS, TREES OR CROPS.

(a) No person, without privilege to do so, shall recklessly cut down, destroy, girdle or otherwise injure a vine, bush, shrub, sapling, tree or crop standing or growing on the land of another or upon public land.

(b) In addition to any penalty provided, whoever violates this section is liable in treble damages for the injury caused. (ORC 901.51)

(c) Whoever violates this section is guilty of a misdemeanor of the fourth degree. (ORC 901.99(A))

9. Definitions

Native tree - Any tree species which occurs naturally and is indigenous within the region. (for our purposes, we consider any tree native to Ohio, Kentucky, or West Virginia as 'native'.

Riparian corridor/ buffer- zone of vegetation along a stream or other continuous waterway. This zone may offer protection against runoff and erosion of the stream bank by increasing infiltration and water holding capacity of the soil.

Caliper - The diameter or thickness of the main stem of a young tree or sapling as measured at six (6") inches above ground level. This measurement is used for nursery-grown trees having a diameter of four inches or less.

Canopy trees - A tree that will grow to a mature height of at least 40 feet with a spread of at least 30 feet.

Critical Root Zone - The minimum area surrounding a tree that is considered essential to support the viability of the tree and is equal to a radius of one foot per inch of trunk diameter (DBH).

Diameter, breast height (DBH) - The diameter or width of the main stem of a tree as measured 4.5 feet above the natural grade at its base.

Tree protection zone - Area surrounding a preserved or planted tree that is essential to the tree's health and survival, and is protected within the guidelines of this plan.

10. Communication Strategy

This plan will not only serve as an operational framework for activities involving trees on the campus grounds, but will also be utilized for educational value. Currently, students enrolled in variety of courses, including Dendrology, Field Methods, Practical Horticulture, Scientific Reasoning, Plant Taxonomy, and Ecology, spend part of their instructional time learning identification and natural history of several species of trees found in the region as well as travelling to nearby Shawnee State Forest, Wayne National Forest, Edge of Appalachia, and Hanging Rock Nature Preserve to learn about conservation of forest lands owned by public and private entities. We also plan to host lectures/ professional development events regarding tree care and landscaping for the campus staff, students, and surrounding communities. This plan will be provided to students to highlight a different aspect of forestry in the urban environment. Further, upon official adoption, this plan will be linked to the Shawnee State University website.

APPENDIX: SSU Woody Plant List

Trees and Shrubs on Shawnee State University Campus including adjoining Ohio River Flood Plain and Contract Student Housing Complex

[List prepared June 2011; up-dated Feb. 2013; up-dated October 2016]

Note: This list is up-to-date at time of preparation but most certainly will change as shrubs and trees have to be removed and different species are planted. Some unusual, rare cultivars of common species are not listed. Species are grouped by Division and Family. A 'dot-map' locating each campus tree has been student-developed. Certain Angiosperm Phylogeny Group (APG) taxonomic changes are not included.

Ginkgophyta, Pinophyta

Ginkgophyta, Ginkgoaceae:

Ginkgo biloba

Ginkgo, Maidenhair Tree

Pinophyta, Pinaceae:

Abies alba

European Silver Fir

Abies concolor

White Fir

Cedrus atlantica

Atlas Cedar

Picea abies

Norway Spruce

Picea abies forma *pendula*

Weeping Norway Spruce

Picea glauca 'Conica'

Dwarf Alberta Spruce

Picea glauca

White Spruce

Picea pungens

Colorado Spruce, 'Blue Spruce'

Pinus mugho

Mugho Pine

Pinus nigra

Black Pine, Austrian Pine

Pinus resinosa

Red Pine

Pinus rigida I

Pitch Pine

Pinus strobus

White Pine

Pseudotsuga menziesii

Douglas Fir

Tsuga canadensis

Hemlock, Canadian Hemlock

Pinophyta, Cupressaceae:

Chamaecyparis pisifera 'Filifera'

Sawara

X Cupressocyparis leylandii

Leyland Cypress

Juniperus chinensis 'Phitzeriana'

Phitzer Juniper

Juniperus chinensis

Gold Needle Cultivars

Juniperus communis

Common Juniper

Juniperus horizontalis 'Wiltonii'

Blue Rug Juniper

Juniperus squamata

'Blue Star' cultivar

Juniperus procumbens 'Nana'

Creeping Juniper

Thuja occidentalis

Eastern Arborvitae

Thuja orientalis

Arborvitae-Variou

X Cupressocyparis leylandii Leyland Cypress

Pinophyta, Taxaceae:

Taxus baccata Cultivars English Yew, Taxus
Taxus cuspidate Cultivars Oriental Yew, Taxus

Pinophyta, Taxodiaceae:

Metasequoia glyptostroboides Dawn Redwood
Taxodium distichum Bald Cypress

Magnoliophyta [Flowering/Fruit-producing species]

Salicaceae – Willows and Poplars

Populus deltoides Cottonwood
Salix babylonica Weeping Willow
Salix interior Sandbar Willow
Salix nigra Black Willow

Juglandaceae – Walnuts and Hickories

Carya ovata Shagbark Hickory
Carya tomentosa Mockernut Hickory
Juglans nigra Black Walnut

Betulaceae (Corylaceae)

Carpinus betulus European Hornbeam
Carpinus betulus 'Columnaris' Fastigate European Hornbeam
Ostrya carpinifolia European (Hop) Hornbeam

Fagaceae

Fagus grandifolia American Beech
Fagus sylvatica 'Dawyck', 'Fastigata'
Quercus acutissima Sawtooth Oak
Quercus alba White Oak
Quercus bicolor Swamp White Oak
Quercus coccinea Scarlet Oak
Quercus imbricaria Shingle Oak
Quercus macrocarpa Bur Oak
Quercus muehlenbergii Yellow or Chinkapin Oak
Quercus palustris Pin Oak
Quercus robur English, Pedunculate Oak
Quercus rubra Red Oak

Ulmaceae – Elms, Zelkovia, and Hackberry

Ulmus americana 'Princeton' American Elm
Zelkovia serrata Japanese Zelkovia

Moraceae – Mulberry and Osage-orange

Morus rubra Red Mulberry

Berberidaceae – Barberry

Berberis thunbergii Japanese Barberry

Magnoliaceae – Magnolias and Yellow Poplar

Liriodendron tulipifera Yellow Poplar, Tulip-tree

Magnolia grandiflora Southern Magnolia

Magnolia lilliflora Lily Magnolia

Magnolia virginiana Sweetbay

Magnolia x hybrids Flowering Magnolias

Calcanthaceae – Sweet-shrub

Calcanthus floridus Carolina Allspice

Saxifragaceae

Hydrangea x hybrid Hydrangea

Itea virginica Virginia Sweetspire

Cercidiphyllaceae

Cercidiphyllum japonicum Katsuratree

Hamamelidaceae – Witch-Hazel

Hamamelis virginiana Witch Hazel

Platanaceae – Sycamore and Plane trees

Platanus x hybrid London Plane

Platanus occidentalis Sycamore

Rosaceae

Amelanchier arborea Common Serviceberry

Amelanchier x hybrid Shrub Serviceberry

Aronia arbutifolia Red Chokeberry

Crataegus phaenopyrum Washington Hawthorn

Malus x hybrid Crab Apple (several cultivars)

Malus hupensis Prairifire Crabapple

Prunus cerasifera 'Purple-leaf Plum'

Prunus serotina Wild Black Cherry

Pyrus calleryana Bradford Pear & etc.

Rosa x hybrid 'Knockout Roses'

Spiraea x hybrid Spirea (Several Cultivars)

Fabaceae [Leguminosae]

<i>Cercis canadensis</i>	Redbud
<i>Cercis canadensis</i> 'Alba'	'White Bud'
<i>Gleditsia triacanthos</i>	Honey Locust (Thornless)
<i>Gymnocladus dioica</i>	Kentucky Coffeetree
<i>Robinia pseudo-acacia</i>	Black Locust

Simaroubaceae

<i>Ailanthus altissima</i>	Tree-of Heaven
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Aquifoliaceae - Hollies

<i>Ilex cornuta</i>	Chinese Holly
<i>Ilex crenata</i>	Japanese Holly, Box-leaved H.
<i>Ilex opaca</i>	American Holly
<i>Ilex verticillata</i>	Winterberry
<i>Ilex</i> x hybrid	Various shrub-forms (K. Meserve series)

Buxaceae - Boxwoods

<i>Buxus microphylla</i>	Littleleaf Boxwood
<i>Buxus sempervirens</i>	Common Boxwood

Anacardiaceae

<i>Rhus aromatic</i>	Fragrant Sumac
<i>Rhus typhina</i>	'Staghorn', Staghorn Sumac

Celestraceae

<i>Euonymus alatus</i>	Winged Euonymus
<i>Euonymus fortunei</i>	Wintercreeper Euonymus
<i>Euonymus japonicus</i>	Japanese Euonymus

Aceraceae - Maples

<i>Acer campestre</i>	Hedge maple
<i>Acer ginnala</i>	Amur Maple
<i>Acer griseum</i>	Paper Bark Maple
<i>Acer negundo</i>	Boxelder
<i>Acer palmatum</i>	Japanese Maple (3 cultivars)
<i>Acer platanoides</i>	Norway Maple
<i>Acer rubrum</i>	Red Maple (Several Cultivars)
<i>Acer saccharinum</i>	Silver Maple, Water Maple
<i>Acer saccharum</i>	Sugar Maple, Hard Maple

Sapindaceae

<i>Koelreuteria paniculata</i>	Golden Raintree
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Rhamnaceae - Buckthorn

Rhamnus caroliniana

Carolina Buckthorn

Tiliaceae – Basswood, Linden

Tilia cordata

Little Leaf Linden (species)

Tilia cordata

'Fairview'

Malvaceae - Mallows

Hibiscus syriacus

Rose-of-Sharon

Nyssaceae - Sourgum

Nyssa sylvatica

Black or Sour Gum

Cornaceae - Dogwoods

Cornus florida

Flowering Dogwood

Cornus kousa

Kousa Dogwood

Cornus mas

Cornelian Cherry

Cornus sanguinea 'Variegata'

Bloodtwig Dogwood

Ericaceae

Rhododendron x hybrid

Rhododendron hybrids

Rhododendron x hybrid

Azaleas

Ebenaceae

Diospyros virginiana

Common Persimmon

Oleaceae

Chionanthus virginicus

Fringetree

Forsythia viridissima

Greenstem Forsythia

Fraxinus americana

White Ash

Ligustrum vulgare

Privet

Bignoniaceae

Catalpa speciosa

Catalpa, Catawba Tree

Caprifoliaceae

Abelia x *grandiflora*

Glossy Abelia

Lonicera japonica

Japanese Honeysuckle

Viburnum prunifolium

Black Haw

Viburnum carlesii

Koreanspice Viburnum

Viburnum plicatum var. *tomentosum*

Doublefile Viburnum

Viburnum x hybrid

possibly 'Dawn' hybrid

Viburnum x *burkwoodii*

Burkwood Viburnum

Viburnum sieboldii var. 'Wavecrest'

Wavecrest Viburnum



U N I V E R S I T Y

Community and Service Learning:

Student members of the Theta Phi Alpha sorority volunteered over 30 hours of time in preparation for a tree seedling give away in the spring of 2016, which occurred in conjunction with the new President's inauguration which was in close proximity of Arbor Day. In addition to the President's inauguration event, our students have been engaged in several other service learning projects throughout the 2016 year. Several biology courses include elements of experiential learning which also contribute service to the campus landscape.

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 2016, students enrolled in this course logged 151.5 hours of service, contributing to the landscape aesthetic of campus with gaining an authentic learning experience. The course description (from University catalog) and pictures of students are included below, and the course syllabus is attached as an appendix.



Students watch tree team member, Murray Smith, mix Imidacloprid for treatment of a large White Ash.



Horticulture students standing around recently planted Dogwoods.

• [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

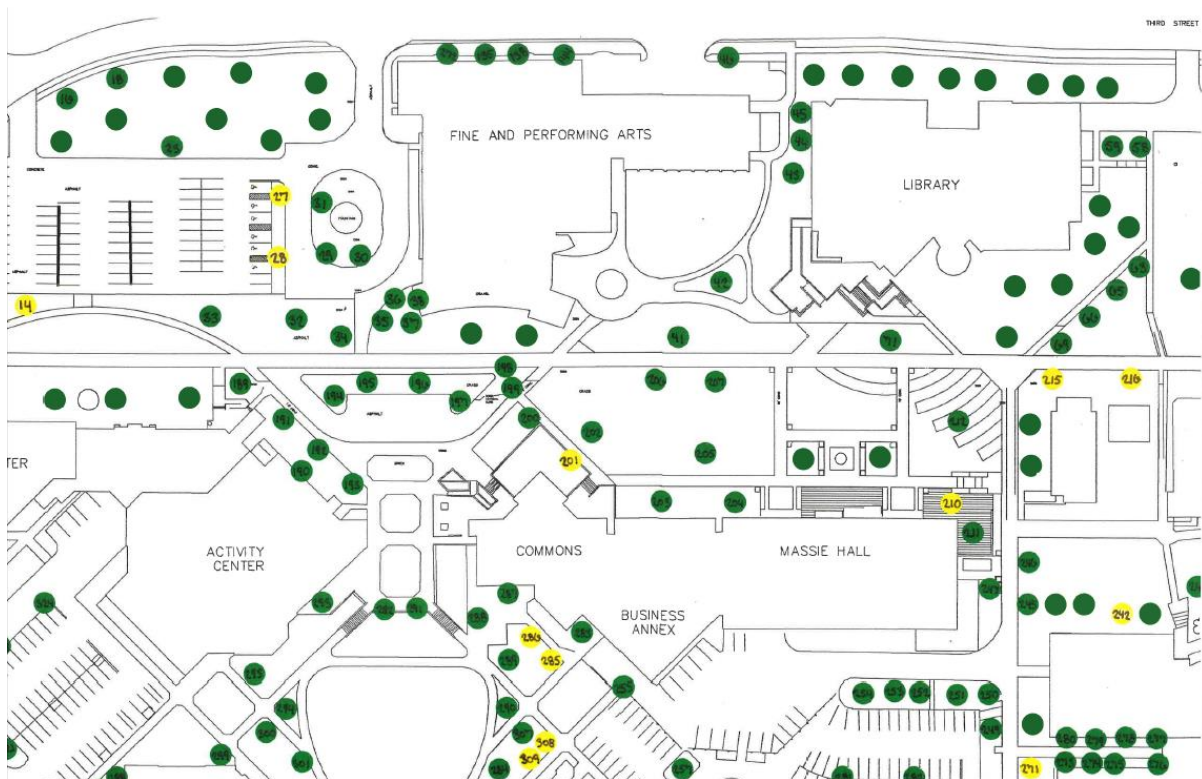
seedlings are either taken home by students or made available to the campus community for planting, at no charge. The source seeds are often collected by students enrolled in the Dendrology course.

3. Upward Bound Math-Science:

High school students enrolled in the program assisted the facilities crew at SSU by removing weeds and volunteer tree seedlings from landscaping on campus during a July community service day (60 volunteer hours). Students were also enrolled in a Plant Science course which utilized the campus tree map and incorporated urban/ landscape tree care into the curriculum.

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. The next scheduled offering of this course (Fall 2017) will continue to collect biometric data from the trees, allowing for a long term picture to emerge of tree health and growth. This will 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 2016

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.

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) {10 - 75} that may or may not be announced in advance. Grade on each is based on the quality of your performance.	<u>Course Points:</u> 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.



U N I V E R S I T Y

Observance of Arbor Day:

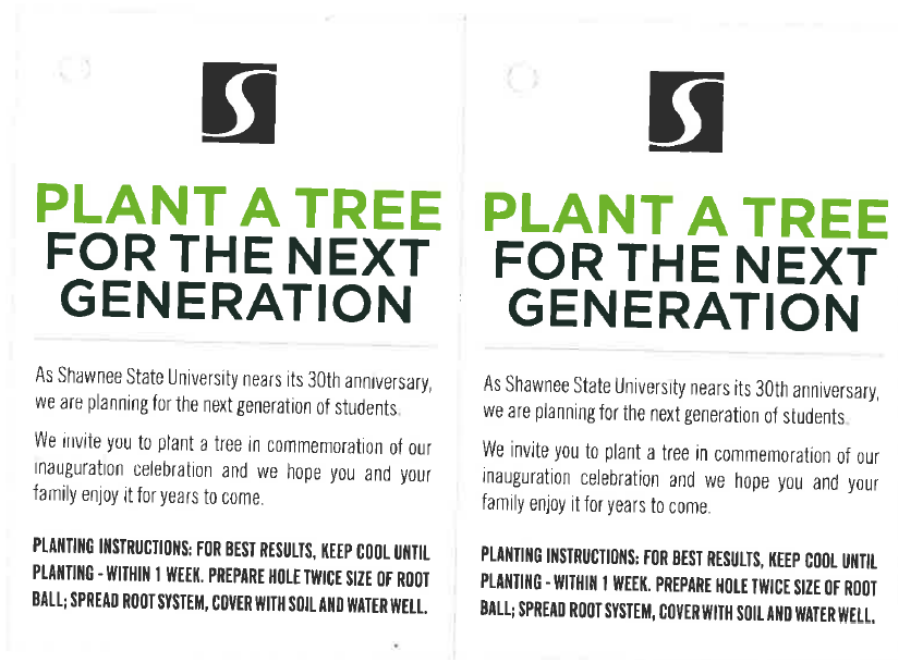
Shawnee State University jointly celebrated Arbor Day along with the installation of new President, Dr. Rick Kurtz and SSU's 30th birthday through a tree seedling giveaway. Attendees were gifted with 2 year, bare root seedlings of *Acer saccharum* or *Prunus serotina* with instructions to plant a tree for the next generation of Shawnee State. Trees were packaged as part of a service project by Theta Phi Alpha sorority. 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.

Shawnee State University – Tree Give-away
Spring 2016

At and after Installation of Dr. Rick Kurtz
As President of the University

1000 2-0 *Acer saccharum* Seedlings

Examples of planting tag attached to each tree:



Shawnee State University – Tree Give-away

Spring 2016

At and after Installation of Dr. Rick Kurtz

As President of the University

1000 2-0 *Acer saccharum* Seedlings

Program indicating tree give-away:

PLEDGE OF SERVICE ADMINISTERED

*Kay Reynolds, Dr. Rick Kurtz, Dr. Jeff Bauer, Dr. Paul Madden, Dr. Andrew Napper,
Dr. Brenda Haas, Dr. Becky Thiel, and Dr. Andrew Feight*

INSTALLATION SPEECH

Dr. Rick Kurtz

ALMA MATER

*(Written by Shirley Evans Crothers-Marley, Newly Arranged by
Dr. Michael Barnhart and Dr. Stanley Workman, Jr.)*

*Performed by The Shawnee State University Choir and Chorale
Directed by Dr. Stanley Workman, Jr.*

ALMA MATER SHAWNEE

Blessings on thee Alma Mater Shawnee State University

Blessings on you standing through the years

We will always think about you fondly

Mem'ries through the joy and through the tears

Alma Mater, Alma Mater Shawnee State University

We your children sing of you today

And when we are far away from you dear Shawnee State University

Our lives will show your guidance on our way

BENEDICTION

The Reverend Sallie Schisler

CLOSING REMARKS

Kay Reynolds

PLATFORM PARTY RECESSIONAL

The Noteworthy Brass Quintet



*(Guests are requested to remain at their seats until after the Platform Party
exits the Eloise Covert Smith Theater)*

*A reception will follow today's Installation Ceremony in the lobby of the University Center.
Please remember to pick up a special token from today's ceremony when you leave. These tokens
will be available outside of the University Center.*

*For those needing a WIFI connection, please go to SSUnet. Your username is picguest
and your password is sKcS*