Plants for Sustainable Landscapes
Plants for Landscape Design II
HORT 308 / 609 Spring 2020

Introducing the Semester Plan & Sustainable Plant Selection

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http://hortsciences.tamu.edu/

http://aggie-horticulture.tamu.edu/syllabi/308/Home/Frameset.htm

https://www.seedyourfuture.org/our_story
Instructors

• Course instructor
  – Dr. Michael Arnold
  – Office hours 10:30 - 11:30 am Monday & Wednesday
  – Teach lectures and coordinate labs
• Tuesday 1:00 pm – 3:00 pm & Tuesday 3:00 – 5:00 pm labs
  – Mr. Jonathan Caples
  – Office hours announced first week
• Tuesday 10:00 am – noon & Wednesday 3:00 - 5:00 pm labs
  – Ms. Amanda Birnbaum
  – Office hours announced first week

Lecture Examinations (HORT 308)

• Lecture portion of class = 1200 pts = 50%
  – Quizzes defined sections, midterm/final cumulative
• Lecture midterm 250 pts
  – Monday March 2, 2020, in class, cumulative
• Lecture quizzes 550 pts (11 at 50 each)
  – Approximately weekly quizzes, in class
  – Not cumulative, digest material in chunks
• Lecture final 400 pts
  – Tuesday, May 5, 2020, 10:30 AM - 12:30 PM
  – Cumulative
  – Incentive for A average

Laboratory Examinations (HORT 308)

• Laboratory examinations = 1200 pts = 50%
  – All laboratory materials are cumulative
• Laboratory quizzes 900 pts (9 required of 11)
  – Weekly beginning second week of classes
  – ID & scientific & common names of 10 plants each
  – Cuttings or potted plants indoors
  – Occasional bonus plants
  – Save makeups for illness / schedule conflicts
• Laboratory Final (300 pts)
  – 30 cuttings or potted plants each, all indoors
  – April 21 / April 22, 2020

HORT 609 Requirements

• Same material as HORT 308 plus:
  • Three field trips on selected Fridays
  – San Antonio Botanic Garden / Riverwalk (February 28)
  – Dallas Arboretum (Dallas Blooms, March 20)
  – East Texas To be determined (April 17)
• Individualized semester project
  – One page proposal (prior to first midterm)
  – End project (last Friday of regular classes, April 24, 2020)
Textbook

On-line availability
http://www.stipes.com/horticulture.html
http://amazon.com

Local availability:
A&M bookstore (MSC)
Traditions (Rothers)
Texas Aggieland

Miscellaneous
• Attendance is mandatory
• Labs meet at classroom in HFSB 110
• Those with special needs, visit with me asap
• Bonus point opportunities
  - Exams & quizzes
  - Lecture bonus activities
  - Special seminar bonuses
  - Possible special semester service project
• Recording of lecture or laboratories is not permitted
• Use of electronic devices is not permitted in class or labs (except camera/phones for plant images only in labs), phones & computers must be turned off during class!
• Cheating & Plagiarism
  - $$$$ WILL NOT BE TOLERATED!!! $$$$
Study Hints:
• GO TO CLASS & LABS!!!
• Learn plants as we go
• Review lecture slides (important for lecture quizzes & exams)
• Review lab images / plant picture pages
• Review plants from past labs as seasons change
• Make flash cards
• Make lists
• Pay attention to family names
• Organize a study group
• Study specimens in timely manner

Plans for the Semester
• First 4-5 lectures
  – First 4 lectures are optional for those whom have passed HORT 306/608, but required for other students
  – However, material will be on exams for all
• Beginning fourth or fifth lecture
  – Tropical & Subtropical Plant Discussion followed by Cacti and Succulents, then … rest of the 11 plant groups + design wrap-up
  – Schedule of topics is on syllabi & website
  – Design elements / ecosystem service summaries
• Labs
  – First scientific names / morphology (optional to past HORT 306/608 students, but still quizzed)
  – Then 11 plant lists for various purposes

Sustainability Is Crucial But What Does It Mean?
Sustainable built environments involve the balancing of social responsibility, environmental and cultural compatibility, economic viability, and effective space utilization to achieve the desired aesthetic impacts and maintenance efficiencies in a dynamic manner that meets current client needs while ensuring continued design integrity and quality of life for future generations.

How Does Sustainable Apply To Plant Utilization In Built Environments?
• Socially responsible
  – Decreased healing times
  – Improved mental health
  – Better working environments
  – Nutritional contributions
  – Community pride / esteem → crime ↓
  – Invasive considerations
How Does Sustainable Apply To Plant Utilization In Built Environments?

- Environmental compatibility
  - Proper species specifications
    - Avoid invasive or weedy species
    - Use natives where appropriate
    - Strive for diversity
    - Utilize plants requiring minimal inputs for the site conditions
    - Balance immediate impacts with long-term aesthetic / environmental benefits

- Design for ecosystem services
  - Carbon sequestration
  - Biofiltration of water / air
  - Soil retention & improvement
  - Storm water runoff reduction
  - Energy conservation
  - Minimize urban heat island impacts
  - Enhance oxygen production
  - Contributions to urban wildlife / ecosystems

- Economic viability / efficient production
  - Availability of plants & costs of production
  - Required resources for maintenance
  - Long term maintenance costs
  - Urban infrastructure interactions
  - Liability issues
  - Impacts on property values
  - Economic multiplier effects
  - Non-aesthetic outputs → food, fuel, fiber, etc.

Challenges?

- Landscapes are inherently dynamic
  - Natural aging and maturation of plantings
  - Enhanced climatic variation is likely
- Balance immediate impacts versus long-term returns
  - Client’s versus societal benefits
  - We live in a “material world”
- Sometimes conflicting goals
  - Examples:
    - Wildlife / pollinator attraction
    - Low inputs versus slower growth
    - Butterfly attraction versus caterpillar damage
**Tropical & Subtropical Plants**
- Recreating paradise
- Coastal ecosystem services
- Unrivaled summer flare

**Cacti, Succulents, & Related Taxa**
- Ultimate water conservers
- Hell defying heat tolerance
- Saviors of wildlife in arid environs
- Greenroofs / living walls

**Ornamental Grasses & Related Monocots**
- Add motion
- Unique textures
- Softening agents
- Soil conservation & pedestrian surfaces
- Edible / economic crops

**Geophytes:**
- Bulbs, Corms, Tubers, & Rhizomes
- Specialty designs
- Rock gardens & aeriscapes
- Classical spring and summer bulbs
**Groundcovers**
- Soil stabilization
- Weed suppression
- Background, contrast, fillers
- Biofiltration
- Green roofs

**Cool Season Annuals**
- Massing / bedding
- Containers
- Specialty designs
- Winter / early spring color
- Dual purpose edibles

**Vines**
- Climbing flowers
- Vertical screens
- Wall covers
- Ecosystem services
- Butterfly/humming bird food & habitat
- Historic / cultural icons

**Transition Season Annuals**
- Riots of color
- Fill the spring & fall in-between times
- Colorful masses/beds/combinations
- Edibles and pollinator attractors
**Warm Season Annuals**
- Heat tolerant annuals
- Summer use of tropicaals
- Intense plants for intense conditions

**Herbaceous Perennials**
- Classic heritage & medicinal plants
- Cottage gardens, borders, kitchen gardens
- Unique textures, forms & habits

**Water Garden & Wetland Plants**
- Portraits of lush & verdant respite
- Color, texture, unrivaled forms
- Biofiltration, remediation
- Riparian / aquatic habitat

**Edible Landscapes**
- Dual purpose plants
- Ornamental, edible, medicinal
- Intertwoven throughout recorded history
Reading Assignments
Pages 1-34 in *Landscape Plants For Texas And Environs, Third Edition*
(Note: Lecture exam bonus questions will come largely from the assigned readings)
&
Syllabus
(signed acknowledgement lecture quiz 1)
Available on Howdy or Class Website

Questions / Comments?
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