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Native Plant Gardening Certificate Series

Class Title: Native Plant Gardening Landscape Design

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Design Methodologies for Safety, Wellness and Beauty Some Ideas to Improve Your Design

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Techniques, Strategies, Pattern, and Methodologies

The design includes techniques, strategies and pattern:

Techniques are concerned with how to do things, such as organic garden bed design or water harvesting. Techniques are one-dimensional.

Strategies are concerned with how and when to do things. Examples of strategies are Biodynamic farming and Fukuoka farming. Strategies are two or three-dimensional.

Pattern is the shape we place elements in. There are basic patterns in nature that perform functions like slowing down, sorting, speeding up, harvesting, flowing and so on. When we emulate those patterns in our designs the designs perform better as a whole.

Methodologies involve system and pattern thinking with techniques and strategies that are aesthetically and ethically appropriate to the place. We ask *What, Where, When, How*, and especially *Why*. We are creating many-dimensional designs with patterns of flow, time, and exchange, and harmonious connections.

Below are a few suggestions to help you design your garden, landscape or property.

Put time in the design

- Leave enough space for things to grow/happen.
- Plant things close together so they will force each other taller sooner.
- Plant temporary annuals to hold space.
- Do seasonal overlays if required.
- Plan to do everything at once rather than bringing subs or equipment to the job several times.
- Design in stages if the budget requires.

- Sequence; Imagine how you would move through the finished garden or landscape. Consider expansion/contraction, light/dark, closed/open, slow/fast, alone/together, short/long, steep/level.
- Plan for seasonal and diurnal cycles.

How to mitigate the climate

To cool, use these:

- Screens and shade sails
- Frost dams
- Orientation and aspect: use north-facing structures
- 90-degree angles
- Transpiration
- Shade
- Places open to summer cooling breezes
- Locate structures midway on slopes.
- Venting
- Have outdoor utilities for misters, fans, and sprinklers.
- Create outdoor evaporative cooling.
- Design growing walls.
- Use solar cookers (instead of heating the house with a stove).
- Wind chimney
- Wind directed over ponds, and under shade

To warm, use these:

- Windbreaks
- Convection and radiant heat transfer, i.e. mass
- Sun traps
- 45-degree angles
- Orientation and aspect: use south and west facing structures.
- Mechanical heaters
- Fire pits
- Heat reflected from ponds

To both heat and cool, use these:

- Vines
- Insulation
- Radiant heat reflection
- Underground constructions, basements, root cellars and wells
- Day / night temperature extenders and adjustments
- Design microclimates and niches

How to assist water to do its duties

- Make sure water gets to where it is needed in the landscape.
- Create swales and/or berms on contour for temporary storage, infiltration and to slow runoff.
- Create swales and/or berms off contour to direct the water where you want it.
- Store water in cisterns, ponds aquacultures for future use.
- Create dry wells and rain gardens to infiltrate water.
- Create dry creeks to direct storm water where you want it.
- Manage gray water for reuse.

- Manage brown water for reuse.
- Protect water quality by only using natural materials.
- Design for transpiration and to manage evaporation.
- Harvest dew and humidity.
- Place water-loving plants in low places.
- Divert surface water from structures so it will not wash out foundations or hard surfaces.
- Divert surface water so it will not build up soil and matter on the up hillside of structures.
- Build retaining walls to slow down surface water and soil erosion.

How to disaster-proof

- Test for radon and vent if necessary. (Not usually found in our geology.)
- Manage erosion by spreading, channeling, slowing down, and breaking up storm water.
- Use roads, paths, wildflower meadows and ponds as firebreaks.
- Have accessible standing water to dip into if the water stops.
- Design with fire retardant plants.
- Make fire and wind walls to break the advance of wild fire.
- Use fire retardant materials for buildings and structures.
- Channel the wind away from structures, because fire travels on wind.
- Create wind shelters from fire and destructive winds.
- Do not put structures in a flood path.
- Design access for emergency response vehicles.
- Design storage for disaster equipment, fire extinguishers, wool blankets, buckets, and first-aid kit.
- Use trees to mitigate wind.
- Have disaster instructions built into your designs.
- Design to avoid growing mold.
- Have fire escape ladders where needed.
- Design for security and crime-proofing.
- Design well-protected entries.
- Know outdoor lighting resources in the area.
- Use post light, light on ground, security light, and underwater lights.
- Outdoor lighting needs to have a security switch which turns on bright floodlights for emergencies.
- Keep safety in mind with each design choice.
- Plant street trees to slow down traffic and cool urban warming.
- If there is a loud sound in the area, like a superhighway next door, or loud music at a nearby performance area, solid walls or solid walls with insulation inside can help cut the sound.
- White noise from falling water can help muffle sound.
- Trees do not muffle sound; they only hide the source of the sound from view.

How to increase yields

- Soil organisms do most of our gardening for us so we need to manage the soil to fulfill their needs and protect them.
- Organic, No-till, Biodynamic, Xeriscape, French Intensive, Fukuoka, Resource Management, and Edible Landscaping are but a few of the strategies for less work and greater yield. Make sure to choose appropriately for your work time and style, and your specific location and resources.
- A Guild is the Permaculture word for the design of beneficial assemblies of companion plants, insects, and animals. This is an excellent system for increasing yields while reducing maintenance and expenses.

- Stack the plants. For example: root plants, ground cover, shrubs, understory trees, over-story trees.
- Pay attention to the movements of light with the seasons to make sure light-loving plants have enough.
- The pattern and timing of shadows significantly affects the growth of plants.
- A “flicker fusion” pattern increases yields.
- Stay bioregional with your selections anything else is “pushing the river.”
- Join a local seed-saving organization to get the best food seeds for your site.
- Do not plant genetically-modified plants.
- Research all species selection.
- Design poly-cultures, copying natural assemblies.
- Plant beds with plants of similar needs.
- Plant densely, for less weeding.
- Learn all weeds; you might have a food crop under your nose.
- Biodiversity is insurance against crop failure.
- Design beneficial insect habitat.
- Learn Integrated Pest Management.
- Make seasonal overlays for full-year production.
- The edge is the most productive part of a natural system, so design with pattern to increase edge.
- Think about the service of each plant and design choice.
- Use animal tractors and weeding-geese.
- Build soil fertility with nitrogen-fixing plants, green manure crops, and plants that acidify the soil.
- Mineralize with seaweed, sulfur, colloidal rock phosphate, granite chips, and marble dust.
- Do not use lime, because our Central Texas geology is limestone and we have plenty.
- Use any organic compost for our area.
- Mulch your plants to protect soil organisms, mitigate soil temperatures and lessen evaporation.
- Learn all the protocols for building soil in your bioregions.

How to design placement for connections and synergy – Pattern

Design emphasizes the patterning of landscape, function and species assemblies. For each element ask: "Where does this element go? How can it be placed for maximum benefit in the system?" The design needs to be multidimensional. A great game to play is to see how many functions or services one design choice will serve.

- Use slope to move materials down hill without added energy. Let slope work for you.
- Think in terms of distances (zones) and directions (sectors) for placement choices.
- Make sure each element in the design has its functional support nearby.
- Use pattern to organize and support functions.
- Careful site observation will help you with accurate placement.
- Balance water, plant, and hard surface in proportions that mimic your bioregion for harmony.
- Intellectual perspective can help to make a small area feel more spacious.
- The landscape tells you where things can be and can't be:
 - Where it is strongest to put a road
 - Where you can run electricity and water
 - Where wastewater bioremediation can happen
 - Where fruit trees can grow and bear
- The most beautiful places need to be protected. Where are they?
- Where will you put places to read, rest, visit, eat, cook, store, play, work, wash, bathe, play music, plug in, hide, mediate, exercise?

- You need a place to sit with your back to a wall in the sun on a south side, sheltered from the winter wind.
- Construct well-protected entries.
- Use side yards for seating, water harvest, and animals.
- Have sunshine and light, shadow and light, airflow, protection from sounds, privacy, protection from smells, and soft surfaces – unless intentionally creating a barrier (then make it prickly) .
- Design for other animals.
- Deal with insects, birds, and other life forms.
- Allow space to screen parking from view.

Bioremediation

- Air quality can be improved by planting young, fast-growing trees.
- Channel airflow throughout the site to avoid stagnant air spaces that create mold.
- Rock and sand filtration is part of the way nature cleans water. It changes the ph, and mineralizes the water as well as providing a place for healthy bacteria to eat viruses.
- Plants are dynamic accumulators that take toxic materials from soil and water and transform them.
- Some plants add oxygen to water and soil through their roots.
- The sun is one of Nature's best cleaners of water and soil. Remember how good clothes smell and look when they come off a clothesline?
- Moving, tumbling, falling water accumulates oxygen that cleans water.
- The ph of water and soil is changed with minerals, plants, and water.
- Out-gassing of new materials is improved by leaving them spread out to sun.
- You can clean up soil contamination with bioremediation.
- Contaminated soils can be used to grow food if you add large amounts of high quality compost. The plants take up the nutrients and bypass the contaminants.
- The temperature of soil and water determines what organisms can live in them. It is sometimes good to keep a layer of mulch on the soil to protect its surface temperature.
- Soil organisms live in the roots of plants and help clean water in wetlands.

How to select renewable energy

Design with all the affordable, alternative, passive, and renewable resources you can locate for your area. This is an ever-changing field that requires a lot of research. Make sure you are not paying for someone's experiment. Use only well-proved systems.

- Don't overlook solar cookers, pumps and fountains.
- Concerning outdoor lighting, stay with low energy use, solar if possible, and cover the lights to protect the nighttime sky.
- Don't forget those useful outdoor electrical outlets for special uses.
- Make sure to install energy infrastructure for future construction.

Recycling and Local Economics

Always choose local and bioregional sources for selections first. Barter and trading systems are common now in many parts of the world. Take the time to locate and be an active member of them. You can be clever about your hard surface choices for containers, paths, furniture and art.

Play with aesthetics

Copying patterns and colors from nature is a great help to create designs that are aesthetically beautiful and give joy and pleasure. Mimic details from the natural landscapes of your region.

Color

- Learn at least one color theory. *The Book of Color* by José Parramón is a good resource for basic color theory. *The Power of Color* by Faber Birren is a fine book about the use of color.
- Chroma is the word for purity or intensity of color.
- Value or Contrast is the darkness and lightness in color theory. Value is what you see in a black and white photo.
- Pallet is the word for your particular color choices within a color theory.
- A warm pallet may be a good choice for a cold climate, as a cool pallet for a warm climate.
- A light pallet may be good for a dark site.
- A pallet with the bright colors like those of plastic toys is youthful and exciting.
- A pale, soft pallet is restful.
- A high contrast pallet is dramatic.
- A pallet of all greens with varieties of sizes, textures, and surfaces with accents of color is practical for a shade site. Put colors in like jewelry.
- Select and stay with a simple pallet until you become more sophisticated with color.
- Keep a chart of bloom colors with times of year.
- Do not mix pallets.

Employ proportion, shape, and scale

- The Golden Section or Golden Mean is a proportion that is found throughout nature. Designers have used it for centuries. A good book on the proportion and how to make it happen in your design is *A beginners Guide To Creating the Universe* by Michael S. Schneider.
- Sacred Geometry is a system of mathematics that can assist you with scale and pattern.
- Plant in clusters of 1, 3, 5, 7, 9, or two sets of each.
- Consider the size and shapes of leaves.
- Consider the height and length of shadows.
- Keep all choices human scale.
- Make corners curve, do not make sharp corners, unless you want your design to be hard looking.
- Pay attention to the form of lines, make them smooth and flowing.
- Design on contour to be in harmony with your land.

What about style?

Style is a major decision in your design. It is best based on the bioregion and culture of your choice. Subtropical, dry land, temperate, forest, beach, are a few bioregional choices. Some cultural choices are ethnic, city, country, or around hobbies or special interests like Mexican haciendas, railroads, cars, and other choices of genre. It is most harmonious to work within the style and traditions of your area. An important rule is to not mix styles. The design can become chaotic with too much style mixing. Be careful of over decorating. This however does not preclude the creation of theme gardens for individual outdoor rooms. Herb/kitchen, aromatic, meditation, exercise, child play, medicine, are but a few of the choices for theme gardens. Rosalind Creasy has an inspirational book on theme gardens called *Earthly Delights*.

Play with texture

- Soft, slick, hard, smooth, pointy, fluffy
- Vary texture for interest, like a few big things with lots of little things.

- Patterns and movement of shadows are an important element in the textures of your designs.
- Designing touch and smell into your garden experience is important, especially if you wish to involve children and blind people.

Enjoy the trip or sequence

Imagine yourself and a friend moving through the spaces you have in your design. You can create interest even in a small space by designing a variety of sequence. Surprise and mystery can be included by the use of screens, curved paths, and small openings to large vistas

- You can employ the following:
 - Expansion and contraction of the path
 - Closed and open areas
 - Lightness and darkness of spaces
 - Being able to move slowly or fast
 - Being able to move alone or together
 - Having short or long paths and large and small spaces
 - Steep or level paths
- Protect the views; do not put buildings on them.
- Screen parking areas from view.

Treat yourself to entertainment

Wind harps, wind chimes, animals, moving sculpture, art, swings, slides, exercise stations, dance floors, performance spaces: all these give aliveness to your designs and get people outside.

Surprise with reflection

- Outdoor mirrors make small spaces feel larger.
- Light colors and water are used to reflect light into dark areas.

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