

Permaculture Design Certificate

COURSE OUTLINE

Introduction to Permaculture

- What does it mean? Misconceptions, definitions, and applications
- History of concept
- Other terms and words, how are they different or similar?
- Defining objectives and framework of permaculture
- Permaculture ethics
- Consequences of an unethical society
- Permaculture as a political and social revolution
- Self-accountability, machinery, and/or slavery
- Emancipation from oppression is systemic
- The reason to act: the environment, society, and the course we're on
- The structure of the permaculture design course and how it progresses - the first 3 days, and the rest of the course
- Examples of permaculture in the world, case studies

Concepts and Themes of Design

- Applying ethics to design
- What principles and understandings govern how we do this? Design principles
 - The problem is the solution
 - Work with nature rather than against it
 - Make the least change for the greatest possible effect
 - The yield of a system is theoretically unlimited
 - Everything gardens
 - Holmgren's principles - their application to good design, and their limits
- The modern scientific method and its disservice to life sciences
- Scientific non-laws (principles) and their application to ethical design
 - Understanding entropy in relation to design of the natural world
 - Succession
 - Adaptation
 - Nested eco-systems
 - Food pyramids, and energy conversion
 - Diversity
- Further concepts to inform design in relation to the natural world
 - Yield
 - Cycles and cyclic opportunity
 - Niches in space and time
- Aims and goals in design
- Types of resources with which to design
- Invasive plants and their role in permaculture systems

Methods of Design

- How to simplify complicated, multi-faceted topics down to their essential elements.
- The breadth of knowledge necessary for good design work, and how to learn it quickly
- Designing from limited knowledge of the natural world
 - Listing components
 - Observation without conclusion
 - Random assembly
 - Inputs and outpost assessments
 - Combining elements into a functioning design system
 - Zone and sector analysis
 - Designing from maps
- Designing after establishing a sophisticated understanding of basic natural patterns
 - Informed observation of nature exploring likely conclusions
 - Established assemblies with relevant innovation
 - Flow diagrams
 - Designing for succession
 - Incremental design
- Important design considerations and constraints
 - Personal life ambitions
 - Self-sufficiency goals and dietary preferences
 - Ecological ideals
 - Lifestyle and prior life experience
 - Scale necessary and scale in question
 - Financial goals
 - Budget
- Introduction to design exercise and relevant maps

Pattern Understanding

- Why understanding the natural world through patterns is so important to design
- Why it isn't taught in universities or schools
- Simplifying infinity
- Properties of media and boundary conditions - the contextual definition of a pattern
- Edges - compatible and incompatible borders and components
- Timing and shaping of events
- The general pattern model
- Toroidal phenomena
- Essential natural patterns
 - Spirals
 - Lobes
 - Scatters
 - Dendretic
 - Nets
 - Streamlines
 - Clouds
- Spirals and pulses expanded
- Branching patterns and orders of size expanded
- Tessellation in space and time
- Practical application of patterns in design beyond interpreting and observing the natural world
- Tribal and historical use of patterns
- Patterns of society and humanity
- The arts in service of life

Climatic Factors

- What drives global climate? How does it work?
- How to simplify and categorise the world's climates in 3 broad categories
- Nuances to world climate, and what affects specific climates to make them so different in countries, and close local areas?
- Microclimates, how to affect your climatic conditions.
- How to design for natural disasters and their increasing frequency.
- Climate controversies - climate change, carbon emissions, weather manipulation, and the signs of judgment day. How do we become united in positive outcomes?

Trees and Their Energy Transactions

- The incredible complexity of the tree
- How trees drive global and local climate - solar effects, temperature, wind, water, soil, and natural disasters - as buffers and prevention
- The effects of deforestation - historic events and consequences
- Types of trees and their effects
- The relationships of trees - photosynthesis, the underground mineral and sugar trade
- Agroforestry and food forests
- Planning for succession, maximising productivity and companion planting
- The history and future of food forests

Water

- Global distribution of water
- The water cycle
- Main sources of human use
- Uses of water
- Global challenges
 - Aquifer draw down
 - Salination
 - Desalination plants
 - Dams and hydropower
 - Large scale-mining and data centres
 - Desertification
 - Weather manipulation
- The context of scale in all these issues
- Our future with water on the path we're on
- The alternative
- What decentralised water management looks like
- An introduction to landscape rehydration
 - Effects
 - Techniques - swales, gabions, half moons,etc
 - Landscape forms and opportunities
 - The trompe
- An introduction to hard-surface run-off interception
- An introduction to small-scale decentralised impoundments
 - Why?
 - Ecological effects
 - Dams and how to build them
- Reading the landscape - landforms and what to understand about them
- Contour maps
- Engineering earthworks against collapse
 - Calculating catchment area
 - Sizing spillways
 - Freeboards
 - Earthworks considerations
- Combining techniques for function - the art of water management
- Novel uses through history
- Water management case studies
 - Puntland, Somalia
 - Lismore, NSW, Australia
 - Szeged, Hungary
 - Jordan
 - Aswan Dam, Egypt
- A tour of Zaytuna Farm's hydrological system

Soil

- Soil loss: The single biggest environmental problem
- The shared history of societal collapse and soil erosion
 - The Ur people in Iraq and the story of wheat
 - Timeless relevance: Egypt and the Nile
 - Agricultural enslavement: Greece and Rome
 - Western Europe and maritime plunder
 - The industrial revolution: the birth of mechanical and chemical agriculture
- Disclaimer/warning about incredible tendency for students to become obsessed about this topic
- The 3 legs of soil science
- Chemical
 - NPK
 - Major and minor elements, and what they do
 - Versions of the periodic table for soil health, and plant, animal, and human nutrition
 - pH
 - Soil toxicity
- Physical
 - Sand, silt and clay
 - How soils are formed
 - The history of dirt
 - Organic matter
- Biology
 - Soil food web
 - Soil succession
 - Above ground succession
 - Organic matter
 - Life under the microscope
- Compost
 - Carbon cycle
 - Nitrogen cycle
 - Hot compost
 - How to make one
 - Cold compost
 - Worm farming
 - Industrial composting
- Compost practical

Earthworking and Earth Resources

- The ethics and function of moving earth
- Planning Earthworks - designing and surveying
- Slope measurement and map reading
- Drainage, capture and infiltration: types of earthworks
- Choosing the right machinery and techniques - types and uses
- Choosing, directing or being (an) operator(s)
- Earth resources and their considerations
- Planting after earthworks

The Humid Tropics

- Introduction to challenges and benefits of the climate, addressing the myth of the "easy life"
- The tropical premium

- Broad categories of tropical climate
- Reading landscape in the tropics
- Novel landscape forms and considerations
- Water in the tropics
- Soil in the tropics
- Earthworks in the tropics
- The Tropical House
- The Tropical Garden
- The Tropical Food forest
- Keeping animals in the tropics
- Landscape management in the tropics
- Waterway and coastal considerations
- Natural Disasters
- Town planning and village design

Dryland Strategies

- Introduction to challenges and benefits of the climate, addressing the myths surrounding "deserts"
- The dryland premium
- The two measures of drylands - aridity and temperature and the broad categories they produce
- Reading landscape in drylands
- Novel landscape forms and considerations
- Water in drylands
- Soil in drylands
- Earthworks in drylands
- The Dryland House
- The Dryland Garden
- The Dryland Food Forest
- Keeping animals in Drylands
- Landscape management in Drylands
- Waterway and coastal considerations
- Natural disasters
- Desertification
- Town planning and village design

Humid Cool to Cold Climates

- Introduction to challenges and benefits of the climate, addressing the myth of the "easy life"
- The cold climate premium
- Broad categories of cold climates
- Reading the landscape in cold climates
- Novel landscape forms and considerations
- Water in cold climates
- Soil in cold climates
- Earthworks in cold climates
- The Cold Climate House
- The Cold Climate Garden
- The Cold Climate Food forest
- Keeping animals in cold climates
- Landscape management in cold climates
- Waterway and coastal considerations
- Natural disasters
- Town planning and village design

Aquaculture

- Defining aquaculture and other terms
- Why aquaculture is this late in the course, and the impact it has on society and land
- Historical examples
 - Mexico city
 - Vietnam
 - The Carpathian valley
 - Hawaii
 - Australian billabongs
- The needs of aquaculture systems
 - Types of containers
 - Types of water
 - Types of soil
 - Types of plants
 - Types of animals
 - Types of nutrients/animal foods
- Energy, edge and capacity
- Temperature effects
- External considerations
- Aquaculture inside a broader system
- Further design considerations
- Cleaning water
- Reed beds
- Natural swimming pools
- Shallow aquacultures
- Salt water

Strategies for an Alternative Global Nation

- An introduction to the most important topic of the course
- The impact of the "nation-state" on the modern world
- The definitions of a nation
- Why the term revolution isn't enough
- Land use and legalities
- Land access
- Finance and modern systems of debt
- Business strategy
- Property development
- The right to right livelihood
- Bioregionalism
- Local groups and political strategies
- Ethical investment
- Aidwork
- AI

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Permaculture Course Schedule - Week one

	Monday	Tuesday	Wednesday	Thursday	Friday
6am-8am	Gardening, Food Forestry and Animal Work (Optional)				
8am-9am	Breakfast				
9am-10.45	Site Induction, introductions and welcome to course	Recap of Yesterday & Feedback Concepts and Themes of Design	Recap from yesterday & feedback Pattern Understanding	Recap from yesterday & feedback Trees and Their Energy Transactions	Recap from yesterday & feedback Water
10.45-11am	Tea Break				
11am-12.45	Continued	Concepts and Themes of Design	Pattern Understanding	Trees and Their Energy Transactions	Water
12.45-1.15	Lunch				
1.15-3pm	Introduction to Permaculture	Methods of Design	Climatic Factors	Water	Soil
3pm-3.15	Tea Break				
3.15-5pm	Introduction to Permaculture Decompress	Methods of Design Decompress	Climatic Factors Decompress	Water Decompress	Soil
5pm-6pm	Dinner				
6pm-7pm	Guest Lecture	Introduction to Design Exercise	Design Examples	Design Exercise Check-in	Guest Lecture

WEEKEND BREAK OPTIONAL ACTIVITY

Ask Sam if there is a weekend regional tour of historic permaculture sites and current projects available to book. Cost: \$500

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Permaculture Course Schedule - Week Two

	Monday	Tuesday	Wednesday	Thursday	Friday
6am-8am	Gardening, Food Forestry and Animal Work (Optional)				
8am-9am	Breakfast				
9am-10.45	Last week recap and feedback Soil	Recap of Yesterday & Feedback Humid Tropics	Recap from yesterday & feedback Strategies for Drylands	Recap from yesterday & feedback Strategies for an Alternative Global Nation	Recap from yesterday & feedback Introduction to Presentations
10.45-11am	Tea Break				
11am-12.45	Soil	Humid Tropics	Strategies for Drylands	Strategies for an Alternative Global Nation	Presentations
12.45-1.15	Lunch				
1.15-3pm	Earthworking and Earth Resources	Humid Cool to Cold Climates	Aquaculture	Design Exercise	Presentations
3pm-3.15	Tea Break				
3.15-5pm	Earthworking and Earth Resources Decompress	Humid Cool to Cold Climates Decompress	Aquaculture Decompress	Design Exercise	Course Recap Where to from here?
5pm-6pm	Dinner				
6pm-7pm	Design Exercise Check-in	Guest Lecture	Guest Lecture	Design Exercise Time	Story Sharing and Talent Show