

Flourish Farms Aquaponics Business Course Syllabus 2017

Day 1

Aquaponics Farming and Component Overview	<ul style="list-style-type: none"> • Aquaponic Industry Overview • Component Selection – tanks, filtration, pumps, aeration, heating • Aquaponic Systems Types – Deep water culture, Media, NFT, Wicking Beds
Plants Basics	<ul style="list-style-type: none"> • Plant growth in aquaponics and challenges • Plant species and characteristics • Vegetative and reproductive growth • Plant needs – nutrients, light, temperature, pH • Organic, conventional, 3rd party certifications
Break	
Fish Basics	<ul style="list-style-type: none"> • Fish inputs and outputs • Fish species and characteristics • Maintaining fish health – water quality, dissolved oxygen, feeding, FCR
Lunch	<ul style="list-style-type: none"> • Class Introductions
Water Basics	<ul style="list-style-type: none"> • Water sources, testing, source water filtration, pH • Cycling, Nitrification and Denitrification • Ammonia, Nitrate, Nitrite • Good and bad bacteria • Algae, duck weed management
At the Farm MHCD	<ul style="list-style-type: none"> • Tour of the Mental Health Center of Denver Greenhouse • Community engagement, staff food box program, crops, VTF program • Discussion of DWC, nursery system, elevated raft, decoupled systems • Fish system, aeration, air lift, heater, plumbing • Site considerations, greenhouse structure, controls, biosecure entrance
3445 Eudora, Denver 35th and Eudora	

Day 2

Marketing and Production Plan	<ul style="list-style-type: none"> • The P's of marketing • Products and Services, Production • Pricing and Promotion • People, Proposition, Placement and Packaging • Profit, Polyculture of revenue, managing expenses
Aquaponic System Design	<ul style="list-style-type: none"> • Space planning and layout considerations • Feed ratios to fish and plant stocking densities • System design principles – tank placement, filtration, aeration and lighting • Coupled and decoupled water flow • Nursery and transplant, media beds, wicking beds
Break	
Financial Planning	<ul style="list-style-type: none"> • Production and Revenue forecasting scenarios • Startup and operating capital costs • Profit and Loss Review • Overview of financial forecasting tools and financial planning spreadsheets
Lunch	
Hands On Build Session	<ul style="list-style-type: none"> • Perform an installation of many common farm components • Fish tank placement • Filtration components • Plumbing components
GeoTech	<ul style="list-style-type: none"> • DWC metal frame construction

Day 3

Food and Farm Safety	<ul style="list-style-type: none">▪ Fish and Leafy greens safety opportunities in aquaponics and challenges▪ Food safety Standards – FSMA, FDA Produce Safety,▪ Food Facility Registration▪ GAPS and HACCP standards▪ Keeping your food and farm safe
Site and Building Considerations	<ul style="list-style-type: none">• Area and location, site selection, zoning• Outdoor and indoor growing• Greenhouse structures• Glazing, insulation and floor materials• Interior and exterior space planning, head house for aquaponics• Indoor growing, on-site cooler, building security
Break	<ul style="list-style-type: none">▪
Environmental Equipment, Monitoring and Controls	<ul style="list-style-type: none">• Air quality considerations – relative humidity, carbon dioxide• Heating and cooling and energy inputs, ventilation• Lighting options• Greenhouse controls and management• Risk management, data capture, operations calendar, emergencies• Monitoring and backup equipment
Lunch	
At the Farm GrowHaus	<ul style="list-style-type: none">• Growhaus tour, community market, hydrofarm, non-profit mission• Review of the aquaponic farm – tanks, filtration, waterflow, aeration• Plant systems, Deep water culture, NFT, nursery, wicking bed, media bed• Decoupled system, backup and monitoring
4751 York St, Denver	

Day 4

GrowHaus	<ul style="list-style-type: none">• Crop planning, seeding, transplanting, harvesting, packing• Fruiting crops, pollination, stacking, pruning, harvesting
Plants Operations	<ul style="list-style-type: none">• pH and nutrient adjustments• Plant disease prevention and controls• Integrated Pest Management
Hands on	<ul style="list-style-type: none">• Seeding, transplanting, harvesting, food safety• Pest management scouting and spray demonstration• Water testing and nutrient adjustments
Break	
Fish Operations	<ul style="list-style-type: none">• Fish transporting, acclimating, handling and stocking, quarantine• Managing fish health – feed, ammonia, nitrites, diseases• Fish disease prevent and controls• Purging, harvesting and breeding
Lunch	Class Picture
Business Planning	<ul style="list-style-type: none">• Business planning resources• Business structures, legal, accounting, insurance and taxes
Personal Planning	<ul style="list-style-type: none">• Hobby to Farm, Creating a Sustainable Business• Personal Plan and Partners• Common Success and Failure Points• Eight Forms of Capital
Open Forum Discussion	<ul style="list-style-type: none">• Q & A session• Certificates of Completion issued
