Dakota College at Bottineau Course Syllabus

Course Prefix/Number/Title: **HORT 221 Aquaponics Management I**

Number of credits: 3

Course Description: Course provides an overview of aquaponics management for designing and managing an aquaponics system including fish to plant ratio, feed to biological surface area (BSA), water quality maintenance, integrated pest management and biosecurity.

Pre-/Co-requisites: HORT 141 Production Aquaponics

Course Objectives:

- Design an aquaponics system using one or more subsystems in combination or stand alone.
- Design an aquaponics system giving consideration to all of the following critical parameters;
  - Water
  - Pumps, pipe, tanks and valves
  - Aeration
  - Filtration – Mechanical and bio-filtration
  - Greenhouse environment
  - Supplemental lighting
- Understand and develop systems accommodating feed to plant to BSA ratios
- Develop a water quality maintenance program
- Provide measures necessary for monitoring, control, and assessing an integrated pest management system
- Understand the necessary precautions required to assure minimum biological risk to fish, plants, workers, beneficial insects, and the users of the produce.

Instructor: Keith Knudson

Office: 105 Simrall Blvd.; Dakota College at Bottineau

Office Hours: 11 AM to 4:50 PM – MWF or by appointment

Phone: 701-228-5489

Email: keith.knudson@dakotacollege.edu

Lecture/Lab Schedule: MWF 10:00 to 10:50 AM

Textbook(s): *"The Aquaponic Farmer"* A Complete Guide to Building and Operating a Commercial Aquaponic System Authors Adrian Southern and Whelm Kin

Course Requirements: Grading will be based on the following to obtain points. There will be 6 lecture quizzes each worth 40 points; 3 individual student led discussions each worth 80 points; and a final exam worth 100.   Total possible points for the course are 580. The final grade is based on the following criteria:

> A = 89.5% to 100% of the total points
> B = 79.5% o < 89.5% of the total points
> C = 68.5% to <79.5% of the total points
> D = 59.6% to <69.5% of the total points
> F = < 59.5% of the total points

Tentative Course Outline:
- System Designs
- Pump specifications vs system requirements
- Aerator specifications vs system requirements
- Bio-filters
- Greenhouse environment
- Lighting for workers, pollinators, beneficial insects, plants and fish
- Bio-security
- Field Trips

General Education Goals/Objectives: Students should follow the Aquaponics Program course curriculum.

Relationship to Campus Theme: This course is part of our Aquaponics Production and Management program and it addresses the campus theme of Nature, Technology and Beyond by learning about our natural resources and how best to utilize each resource. The latest technology is discussed and demonstrated.

Classroom Policies:
1. Cell phones, iPods and related technologies use are prohibited in the classroom unless otherwise instructed.
2. Food and beverages are permitted in accordance with IVN classroom policy.
3. Be respectful of other students, instructor and guests.

Student Email Policy:
> Dakota College at Bottineau is increasingly dependent upon email as an official form of communication. A student's campus-assigned email address will be the only one recognized by the campus for official mailings. The liability for missing or not acting upon important information conveyed via campus email rests with the student.

Academic Integrity: All students are expected to excel to the best of their ability. Students must adhere to the highest standards of academic integrity. Dishonesty in the classroom or laboratory and with assignments, quizzes and exams is a serious offense and is subject to disciplinary action by the instructor and college administration. For more information, refer to the student handbook.

Disabilities and Special Needs: If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact your instructor and the Learning Center (701-228-5479) as early as possible during the beginning of the semester