

The Green Advantage

Overview:

The GREEN Advantage USDA HSI Grant

The purpose of the grant is to pursue other ways in which EPCC Culinary Arts remains updated with modern techniques, and industry trends while embracing community movements.

System and Equipment:

- The bulk of these monies will be spent on a complete aquaponics system. The system requires HVAC, solar power, and minimal maintenance by students and staff

The Student Interaction

This system will allow:

- The students to be directly involved with the sustainability aspect of the project.
- The faculty and staff to guide and monitor Honor Students who will be taking care of the system along with the Purchasing classes (determining specifications), and the Safety and Sanitation class(organically grown foods free of pesticides and fertilizers).
- The community and various ISDs, local growers and restaurateurs in the greater El Paso area to collaborate with EPCC

The College facilities

The college provides the space, power, and security which are all in place and at ASC B. Although the project is will have some power infrastructure, the design promotes solar capture to minimize the power consumption of this project.

Timeline

The project has a timeline of two years, it is broken down into; a three months setup, a test phase as well as a growth cycle which will take up to 21 months to complete.

This project would serve as a stepping stone for a long-term self-sustaining program. As a whole EPCC is striving to exceed previous retention, having an aquaponic system would assist with keeping students' interest throughout their career at EPCC. Along with those goals we are also leading our students to “learn about the community as a community”.

The GREEN Advantage

In the last three years El Paso Community College's Culinary Arts and Related Sciences programs have surpassed their projected growth rates. This growth is attributed to our pursuit of excellence in our field and the dedication that EPCC has shown to our program.

One of the ways in which we at EPCC Culinary Arts pursue excellence is by keeping updated with modern techniques and embracing community movements as well as industry trends. The Culinary Arts program has dedicated itself to supporting sustainability and green projects with the college and within our industry. One example is the GREEN Advantage USDA grant initiative. This project will allow us to demonstrate a completely sustainable food system to our students, area ISDs and our community, as well as offer a CE component for EPCC.

The GREEN Advantage (Growing Reusable Energy Efficiently & Naturally) system would feature a self-sustaining Aquaponics System that will produce a growth cycle that will generate food crops, foliage, and fish crops. This system will showcase a tilapia fish farm, various growing chambers, filtration systems, traditional gardening and a variety of fruits, vegetables and nut trees. This system would be monitored and maintained by key personnel and will utilize our Honors Students to promote and expand this system. Students who seek to graduate with honors will be expected to complete projects within the scope of this GREEN initiative. We are confident that this will be successful approach, because our students have monitored and maintained similar cultivation projects within our district in the past.

Our GREEN advantage will be added to the core curriculum of the Culinary and Related Sciences Degree Plan. This means that all students in our discipline will be exposed to this project. The classes we have chosen are; Sanitation and Safety and Purchasing for Hospitality Operations. These two core classes focus on issues in our industry that are related to food service such as food safety, growing practices, pesticides, fork to table applications, organics, sustainability, and local sourcing. The project timeline is two years, it will be broken down into a three months setup and test phase and a growth cycle which will take up to 21 months to complete. During the 21 months there will be various stages of harvesting, planting and cultivating.

We will be working with the various ISDs in the greater El Paso area, local growers, restaurateurs and our EPCC family to insure that all our students have The GREEN Advantage.

Objectives:

1. Establish an Aquaponics system to provide students with hands-on experiential learning in an organic, eco-friendly, self-sustaining platform.
2. To incorporate the integration of an Aquaponics system into the culinary curriculum

CHEF 1305 Safety and Sanitation – monitoring, testing, upkeep

RSTO 1325 Purchasing for Hospitality – planting, harvesting, monitoring and upkeep

Honors Program – dissemination, monitoring, maintenance and upkeep

3. To develop an educational showcase laboratory to exhibit this project to the public school students and the community as a whole.
4. Increase the number of underrepresented students majoring in the food and Agricultural Sciences

Climate Controlled Aquaponics Facility – A greenhouse, climate controlled using solar panels, covers the planting beds and fish tanks, as well as associated support mechanics.

Location – Off Viscount Blvd behind ASC Building B

Solar Energy – Solar energy will supply part or all of the electrical needs of the Aquaponics facility.

Tours/Workshops – Given frequently to school children, business leaders, and the public at large.

Student Participation – Through culinary courses and honors program.

Organic produce and fish production for our restaurants – Fresh Aquaponics products consisting of fruits, vegetables, herbs and live fish will be served in our Dine and Dash and 1309 Restaurants.

The purpose of the grant is to pursue other ways in which EPCC Culinary Arts remains updated with modern techniques and embracing community movements as well as industry trends we will accomplish this in three focused objectives.

One: is to acquire a working sustainable Aquaponics model. No other community college Culinary of other program that we are aware of has a working Aquaponics growing system. This will provide a leading edge of technology for the college.

Two: to strengthen the culinary arts degree by adding an Aquaponics model as an alternative to traditional farming. This will support and empower our students with much needed

exposer to cultivation of food, maintaining eco-friendly systems and address concerns on food safety, growing practices, pesticides, fork to table applications, organics, sustainability, and local sourcing in the industry. Ultimately this will expose the students to growing and maintaining their own fruits and vegetable; not just cooking them.

Finally, this modal is expandable. The expandability of the system will allow for growth to include other disciplines like Chemistry, Master Gardener program, CE and Biology. Once we devised a lab environment the initiative is designed to give our students a competitive edge over other students not exposed to this system.

In order to achieve this project, a USDA grant was selected that would allow us to purchase the required equipment and redevelop key courses to satisfy the parameters of the grant. The grant that was chosen is for a Hispanic Serving Institution that would educate and prepare an underrepresented class for agricultural or food service jobs. With this in mind, the focus is to give our students an advantage over other students in similar institutions.

The USDA Grant was 200,000, our total cost for our project is \$103,985.00 this includes all expenses needed to complete our model and satisfy the requirements for oversight and travel the grant mandated. These activities including (Labor) the faculty time required for updating of curricula, (Equipment) setup of the aquaponics lab system, and (Travel) dissemination of information and education to student and community population.

As detailed in the budget, minimal, and one-time expensed, grant costs are requested for two faculty assignments, one for each core course to be revised. This is the total expenditure for labor costs associated with the grant. Because this system will be integrated into the curricula and managed by honor students minimal paid labor is required.

The equipment for the complete Aquaponic science-based system will house a tilapia fish farm, various growing chambers, filtration systems, traditional gardening and a variety of fruits, vegetables and nut trees. The design includes four large fish tanks, tank drains and fish tank stands, filters, tank drains and filter tank stands, the raft tank frame and custom-fit food-grade raft tanks and rafts, water pump(s) and plumbing, gate valves and true union ball valves, air blower, aeration system and air diffusers, accelerated plant nursery system, fish net, starter supply of grow cubes. It also includes a working clement controlled greenhouse and beautification of the outside area. The size of this model will have the ability to supply the EPCC

culinary arts program with usable produce (10,000-12,800 heads of lettuce per year) and fish protein (1,200 Lbs. per year) this would generate a considerable amount savings for the culinary arts program.

The travel was estimated on the amount of trips required by the parameters of the grant for dissemination. This includes two trips to DC by the grant supervisor (one for every year) and groups of student trips to other dissemination points. The student travel is the bulk of the travel expense. The grant requires the student to present their findings to other USDA institutions and programs.

The scope of the grant will harbor a win-win scenario for both the students and EPCC. The minimal investment from the collage will be narrowed down to allocation of space for the project, power and security concerns and leveling of the space needed for the green house.

The space that will be housing the greenhouse and aquaponics system has already been approved by EPCC Facilities. The leveling of the desired space is still being negotiated and will be finalized if the grant is awarded. Finally the power and security will be tied into B building and will be offset by the solar power equipment that is in the itemized equipment list. (attached)

This project would serve as a stepping stone for a long-term self-sustaining program. As a whole EPCC is striving to exceed previous retention, having an aquaponic system would assist with keeping students' interest throughout their career at EPCC. Along with those goals we are also leading our students to "learn about the community as a community".

In a nutshell:

- Aquaponics- is a combination of Hydroponics (the growing of plants w/o soil) and Aquaculture (the growing for aquatic life)
- We Purchase an Aquaponics System that will produce a growth cycle that will generate food crops, foliage, and fish crops.
- We use this system to grow vegetation to feed the fish; that feed off the plants; that produce fish waste; that feed the plants; that feed us, one big cycle.

- We will use this to show the students what plants look like before they get to the supermarket, before they are put in plastic wrap and boxes.
- Also to show the students how to care for the fish they will have an opportunity to eat.
- Faculty personnel and monitor Honor Students who will be taking care of the system along with the Purchasing classes and the Safety and Sanitation class.