Proposal for Innovative and Creative Undergraduate Teaching

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Evidence-based relationships between diet and the major nutritionally-related medical conditions (heart disease, cancer, stroke, diabetes and osteoporosis) are not adequately present in curricular offerings in educational systems. 21st century nutrition concerns not only include the epidemic of obesity and all of the associated health risks, but also the awareness and need for a more sustainable food system. The 2010 Dietary Guidelines for Americans has clearly integrated these two major nutrition issues to be actively addressed in our educational systems. The nutrition program has the opportunity to expand at the Davis campus in a unique direction. The Davis Campus fully supports the renovation of the nurses' clinical room (236) to a foods lab. The nutrition program has developed a new course (NUTR 1240) that will be taught in the renovated space. This course will focus on culinary art and food science principles that will develop the skills, knowledge and competencies for students to support healthier, sustainable ways to acquire, prepare and consume food. Additionally, a strong connection from the classroom to the community will be established by producing media to share student presentations and food prep demonstrations to educate and communicate information about healthy foods, healthy communities and healthy environments to the public. The research and the impact of this course will be presented at the Weber State University (WSU) Sustainability and Utah Academy of Nutrition and Dietetics (UAND) conferences, as well as at the Major's Meeting held for statewide articulation of nutrition programs and curricula issues.

The NUTR 1240 course is already articulated in the Utah System of Higher Education (USHE). It is a very popular class for non-majors, majors, and community members. It is evidenced by the USHE campuses that offer the course that it is needed and valued by students. This educational experience offered at WSU will support and grow a healthier population and environment as more individuals take the class. Another favorable compliment to this class is the collaboration with the Botany Department to establish the presence and the bridging of a community garden and greenhouse to botany courses and nutrition food labs. The NUTR 1240 course will utilize the food produced in the garden and greenhouse to enhance the lab experience. Furthermore, the community garden will afford the opportunity for WSU students to be a part of supporting more sustainable food production, acquisition and consumption.

The foods lab must be technologically capable for the assessment of learning outcomes, student performance, and the sharing of knowledge and showcasing of student skills. Therefore, the requested technology is required to provide excellent undergraduate teaching and learning that supports an innovative and creative educational experience.

This ambitious proposal aims to meaningfully enhance the undergraduate educational experience using new instructional technologies and will provide a diverse array of pedagogics to teach, learn, research, report and extend to lifelong learners.

Rational

Depth of impact: Not only will students be exposed to the knowledge and the experiences of planned labs, a student food demonstration will be captured live and the content will be video-captured and streamed to the WSU server to build a website that is intended to educate, connect to the community and recruit students. Students will be required to use presentation software, the food prep teaching station and audio-visual capturing technologies to address food system sustainability issues (producing and acquiring the food), the nutritional value of the foods used in the demonstration, the impact on health, safe food handling issues, the presentation of the culinary product and the application of food science principles while preparing the food.

Breadth of impact: A diversity of healthy, sustainable food practices will be captured and streamed to build a library of food demonstrations that will be available to integrate into other nutrition classes, special programs for WSU students (dorm residence and athletes), community schools and lifelong learners. Eventually, the opportunity to offer academic and community online education that will support healthy ways of acquiring and consuming food that will be suitable for both the public and WSU students.

Measurement (assessment): All of the nutrition course syllabi have been revised to include consistently presented, measurable learning outcomes identifying three major content areas and seven to eight learning outcomes. The following are those for NUTR 1240 (3).

Major Content Areas

1. Culinary science and skills
2. Nutritional value
3. Sustainable food systems

Measurable Learning Outcomes

Upon completion of NUTR 1240, Exploration in Culinary Art & Food Science, students will have demonstrated their:

1. Knowledge of scientific principles of food preparation.
2. Understanding of and ability to perform culinary skills used in food preparation.
3. Knowledge of healthy food choices per the Dietary Guidelines for Americans.
4. Ability to prepare foods in a healthful way utilizing various cooking and food presentation techniques.
5. Understanding of sustainable food acquisition, preparation, and consumption.
6. Knowledge of sustainable food growing techniques and practices.
7. Ability to assimilate healthy cooking skills and techniques by performing a cooking demonstration with peers.

By using clickers for peer instruction and grading rubrics in class discussions, direct evidence of learning outcomes 3, 5 and 6 will be produced.

By using the audio-visual capturing and streaming equipment, clickers for peer instruction, grading rubrics and diet analysis software in laboratory experiences and academics, direct evidence of all learning outcomes will be produced.

Using clickers for peer instruction and grading rubrics in community-based learning experiences, direct evidence of learning outcomes 3, 5 and 6 will be produced.

Accountability (realistic plan of action): There has been collaboration for the development of this class for two years. Faculty is in place to teach this course and the renovation of the nursing room to a foods lab is funded. The NUTR 1240 new course proposal has passed faculty senate. The addition of a lab fee to the NUTR 1240 course will be reviewed in January, 2014. The search for funds to support the teaching innovation and technology is ongoing. The search for resources to support the community garden, greenhouse and the lab is also ongoing. Additionally, resources are available for the support staff needed to assist with the management of the greenhouse, the botany labs and the food labs for three to five years. A long-term plan to sustain the collaborative efforts is required and being sought.

Innovation: The use of the clickers system for research, learning, peer instruction and engagement in the classroom, in addition to capturing the unique combination of nutritional value, health, food system sustainability, principles of food science, food safety, presentation and healthy food preparation in a cooking demonstration will produce needed skills, competencies, knowledge and library to be a healthier society. The technology will empower to program to become more research oriented and more sustainable by developing more educational opportunities to create residue funds from more community involvement.

Preliminary evidence: By students having to prepare such a multifaceted production project, each student will develop intellectual and teaching abilities from personal research, the use of technology in the learning environments and the experience of conducting a food demonstration.

Implementation: During the summer of 2014, the community garden will be planted with foods that will be used in the foods lab. In the Fall of 2014, the first sections of NUTR 1240 will be offered; one lecture section and two to three foods lab sections. There is the anticipation of 40 students per semester for the first year. By the following year (Fall 2015), the expectation is to double the enrollment, and triple it by Fall of 2016. As the NUTR 1240 class grows in popularity and demand, the positive impact on the health of students will also grow. As time goes on, the desire is to not only accommodate the growing student demands in the foods lab but to also develop lifelong learning opportunities for our community members through Continuing Education. The generation of residue funds from offering Continuing Education programs will be used to

sustain the lab. In the future, working with Continuing Education and the Deans to ensure support for the continuation of this project will be a priority.

Sustainability: (Plan for continued growth)
The nutrition program would like to partner with Continuing Education to begin offering community lifelong learning sessions face-to-face by the Fall of 2015 to help subsidize the foods lab. During a meeting on 12/6/2013 about the foods lab, greenhouse, and community garden, Nutrition, Botany and Continuing Education devised a three to five year plan for NUTR 1240 and a botany course to be taught at the Davis campus. In addition, management of the greenhouse, garden, and foods lab is a priority and the plan is to employee an hourly support person (likely ~ 20 hours per week for 11 months paid ~$15/hour) to manage these aspects on the Davis Campus.

Budget: See the table below and on the next page for budget details. The need/use column notes the reason for the expenditures. In general, what is needed is the technology; to use the clickers system for research, learning, peer instruction and engagement in the classroom; to capture the unique combination of nutritional value, health, food system sustainability, principles of food science, food safety, presentation and healthy food preparation in students' cooking demonstrations; to create a library of video showcasing the skills, competencies, and knowledge to consume healthier foods. The technology will empower to program to become more research oriented and more sustainable by developing more educational opportunities to create residue funds from more community involvement.

Hardware	Costs	Need/use	Other
HD LED projector Panasonic PT-RZ370		Project CRT images	CE $2744
Projector mounting plate Chief RPAU		"	CE $150
Document camera Elmo TT-12	$800	Project adjunct images	
Blue Ray DVD player Panasonic DMP-BD75	$100	Provide audio visual resources	
Audio amplifier Extron XPA 2001	$400	"	
Ceiling speakers Extron FF 120T	$1020	"	
Control system Extron IN-1606	$1350	"	
Button panel Extron MLC 226IP	$900	"	
Standard campus computer	$750	"	
Computer monitor with HDMI input	$400	"	
The set-up for 30 Clickers ResponseCard NXT 30 quanity RF HID Receiver 03 (4 GB Storage) ResponseCard Presenter RF LCD XR Case/Binder - 45 count	 $1,200 $149 $32 $50	system for research, learning, peer instruction and engagement in the classroom	

Software	Costs	Need/use	Other
Two Canon 32 GB VIXIA HF R42 Full HD Camcorder	$758	Audio-visual capturing, streaming, teaching, learning and building a library	
Sennheiser EW112 wireless lapel microphone	$536	"	
Two Magnus VT-4000 Tripod Systems with Fluid Head	$260	"	
Computer to capture, compress, edit and export video	$2000	"	
Datavideo SE 2000 HD video switcher	$3840	"	
Monitor for Video Switcher	$200	"	
Blackmagic Design Decklink Studio 2 Capture card	$661	"	
Two Datavideo DAC-9P HDMI to HD/SD-SDI 1080p/60 Converter	$566	"	
Cables, connectors, hardware, etc.	$600	"	
Boundary microphones for classroom (3 to start)	$561	"	
Installation (campus FM)	$3000	Audio-visual systems	