Cover Sheet: Request 12996

PLS 3XXXC Hydroponic Systems

Info

Process	Course|New|Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Gerardo Nunez Villegas g.nunez@ufl.edu
Created	9/5/2018 12:40:13 PM
Updated	9/21/2018 4:56:24 PM
Description of request	We request to create a new course titled PLS 3XXX C - Hydroponic Systems

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Horticultural Sciences 514923000	Christine Chase		9/5/2018
No document changes					
College	Approved	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	Edits required by the CALS CC have been addressed.	9/21/2018
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			9/21/2018
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|New for request 12996

Info

Request: PLS 3XXXC Hydroponic Systems
Description of request: We request to create a new course titled PLS 3XXX C - Hydroponic Systems
Submitter: Gerardo Nunez Villegas g.nunez@ufl.edu
Created: 9/21/2018 2:12:21 PM
Form version: 4

Responses

Recommended Prefix
Enter the three letter code indicating placement of course within the discipline (e.g., POS, ATR, ENC). Note that for new course proposals, the State Common Numbering System (SCNS) may assign a different prefix.

Response:
PLS

Course Level
Select the one digit code preceding the course number that indicates the course level at which the course is taught (e.g., 1=freshman, 2=sophomore, etc.).

Response:
3

Number
Enter the three digit code indicating the specific content of the course based on the SCNS taxonomy and course equivalency profiles. For new course requests, this may be XXX until SCNS assigns an appropriate number.

Response:
XXX

Category of Instruction
Indicate whether the course is introductory, intermediate or advanced. Introductory courses are those that require no prerequisites and are general in nature. Intermediate courses require some prior preparation in a related area. Advanced courses require specific competencies or knowledge relevant to the topic prior to enrollment.

Response:
Intermediate

• 1000 and 2000 level = Introductory undergraduate
• 3000 level = Intermediate undergraduate
• 4000 level = Advanced undergraduate
• 5000 level = Introductory graduate
• 6000 level = Intermediate graduate
• 7000 level = Advanced graduate

4000/5000 and 4000/6000 levels = Joint undergraduate/graduate (these must be approved by the UCC and the Graduate Council)

Lab Code
Enter the lab code to indicate whether the course is lecture only (None), lab only (L), or a combined lecture and lab (C).

Response:
C

Course Title
Enter the title of the course as it should appear in the Academic Catalog.

Response:
Hydroponic Systems

Transcript Title
Enter the title that will appear in the transcript and the schedule of courses. Note that this must be limited to 21 characters (including spaces and punctuation).

Response:
Hydroponic Systems

Degree Type
Select the type of degree program for which this course is intended.

Response:
Baccalaureate

Delivery Method(s)
Indicate all platforms through which the course is currently planned to be delivered.

Response:
On-Campus, Online

Co-Listing
Will this course be jointly taught to undergraduate, graduate, and/or professional students?

Response:
No

Co-Listing Explanation
Please detail how coursework differs for undergraduate, graduate, and/or professional students. Additionally, please upload a copy of both the undergraduate and graduate syllabus to the request in .pdf format.

Response:
Not applicable

Effective Term

Select the requested term that the course will first be offered. Selecting "Earliest" will allow the course to be active in the earliest term after SCNS approval. If a specific term and year are selected, this should reflect the department's best projection. Courses cannot be implemented retroactively, and therefore the actual effective term cannot be prior to SCNS approval, which must be obtained prior to the first day of classes for the effective term. SCNS approval typically requires 2 to 6 weeks after approval of the course at UF.

Response:
Earliest Available

Effective Year
Select the requested year that the course will first be offered. See preceding item for further information.

Response:
Earliest Available

Rotating Topic?
Select "Yes" if the course can have rotating (varying) topics. These course titles can vary by topic in the Schedule of Courses.

Response:
No

Repeatable Credit?
Select "Yes" if the course may be repeated for credit. If the course will also have rotating topics, be sure to indicate this in the question above.

Response:
No

Amount of Credit
Select the number of credits awarded to the student upon successful completion, or select "Variable" if the course will be offered with variable credit and then indicate the minimum and maximum credits per section. Note that credit hours are regulated by Rule 6A-10.033, FAC. If you select "Variable" for the amount of credit, additional fields will appear in which to indicate the minimum and maximum number of total credits.

Response:
3

S/U Only?
Select "Yes" if all students should be graded as S/U in the course. Note that each course must be entered into the UF curriculum inventory as either letter-graded or S/U. A course may not have both options. However, letter-graded courses allow students to take the course S/U with instructor permission.

Response:
No

Contact Type
Select the best option to describe course contact type. This selection determines whether base hours or

headcount hours will be used to determine the total contact hours per credit hour. Note that the headcount hour options are for courses that involve contact between the student and the professor on an individual basis.

Response:
Regularly Scheduled

• Regularly Scheduled [base hr]
• Thesis/Dissertation Supervision [1.0 headcount hr]
• Directed Individual Studies [0.5 headcount hr]
• Supervision of Student Interns [0.8 headcount hr]
• Supervision of Teaching/Research [0.5 headcount hr]
• Supervision of Cooperative Education [0.8 headcount hr]

Contact the Office of Institutional Planning and Research (352-392-0456) with questions regarding contact type.

Weekly Contact Hours
Indicate the number of hours instructors will have contact with students each week on average throughout the duration of the course.

Response:
3

Course Description
Provide a brief narrative description of the course content. This description will be published in the Academic Catalog and is limited to 50 words or fewer. See course description guidelines.

Response:
This course offers students foundational information and hands-on experience on hydroponic and soilless cultivation of horticultural crops. Production practices, growing systems, new technologies and current challenges are discussed.

Prerequisites
Indicate all requirements that must be satisfied prior to enrollment in the course. Prerequisites will be automatically checked for each student attempting to register for the course. The prerequisite will be published in the Academic Catalog and must be formulated so that it can be enforced in the registration system. Please note that upper division courses (i.e., intermediate or advanced level of instruction) must have proper prerequisites to target the appropriate audience for the course.

Response:
HOS 3020C or PLS 3004C

Completing Prerequisites on UCC forms:

• Use "&" and "or" to conjoin multiple requirements; do not used commas, semicolons, etc.
• Use parentheses to specify groupings in multiple requirements.
• Specifying a course prerequisite (without specifying a grade) assumes the required passing grade is D-. In order to specify a different grade, include the grade in parentheses immediately after the course number. For example, "MAC 2311(B)" indicates that students are required to obtain a grade of B in Calculus I. MAC2311 by itself would only require a grade of D-.
• Specify all majors or minors included (if all majors in a college are acceptable the college code is sufficient).
• "Permission of department" is always an option so it should not be included in any prerequisite or co-requisite.

Example: A grade of C in HSC 3502, passing grades in HSC 3057 or HSC 4558, and major/minor in PHHP should be written as follows:
HSC 3502(C) & (HSC 3057 or HSC 4558) & (HP college or (HS or CMS or DSC or HP or RS minor))

Co-requisites
Indicate all requirements that must be taken concurrently with the course. Co-requisites are not checked by the registration system.

Response:
None

Rationale and Placement in Curriculum
Explain the rationale for offering the course and its place in the curriculum.

Response:
Hydroponic systems are fundamental tools in horticulture. This course leverages the strengths of faculty in two departments to train students in the principles and practices involved in using hydroponic systems. This course will be an approved elective for students in the Horticultural Sciences and Plant Science programs.

Course Objectives
Describe the core knowledge and skills that student should derive from the course. The objectives should be both observable and measurable.

Response:
Upon successful completion of this course, students will be able to:
- Describe essential components of single-pass and recirculating hydroponic systems
- Compare different substrates and hydroponic system designs
- Interpret water quality analysis results and recommend corrections
- Create nutrient solutions using salts or mixed fertilizers
- Evaluate the importance of water quality, dissolved oxygen, salinity, and pH management for hydroponic production
- Select hydroponic systems for production of leafy greens, herbs, solanaceous crops, and woody ornamentals
- Apply solution chemistry knowledge and plant biology concepts to manage hydroponic systems

Course Textbook(s) and/or Other Assigned Reading
Enter the title, author(s) and publication date of textbooks and/or readings that will be assigned. Please provide specific examples to evaluate the course.

Response:
There is no required textbook for this course. These two textbooks are valuable reference sources.
- Hydroponics for the Home Grower – Howard M. Resh ISBN 978-1-14822-3926-3
- How to hydroponics – Keith Roberto ISBN 0-96-72026-0-4

Weekly Schedule of Topics
Provide a projected weekly schedule of topics. This should have sufficient detail to evaluate how the course would meet current curricular needs and the extent to which it overlaps with existing courses at UF.

Response:
Week 1: Controlled Environment Agriculture and hydroponics: Past, present, and future; Advantages and disadvantages of hydroponics; Uses of hydroponic systems; Hydroponic crops
Week 2: Basic production principles; Growing substrates; Growing systems; System components; Practicum: Assembling and operating NFT and DWC systems

Week 3: Alkalinity and pH; Alkalinity corrections using AlkCalc; Electrical conductivity, toxic elements, biological contaminants; Water sampling; Practicum: Assembling and operating ebb & flood and vertical systems
Week 4: Introduction to nutrient solutions; Fertilizers and labels; Mixing nutrient solutions; Practicum: Mixing a custom-made nutrient solution
Week 5: Fertilizer injectors and practical problems; Basic principles of organic nutrition; Organic hydroponics; Practicum: Assembling and operating aeroponics and fogponics systems
Week 6: Introduction to aquaponics; Aquaponic systems and components; Sanitation; Common errors with hydroponic production; Practicum: Cleaning and sanitizing hydroponics systems

Links and Policies
Consult the syllabus policy page for a list of required and recommended links to add to the syllabus. Please list the links and any additional policies that will be added to the course syllabus.
Please see: syllabus.ufl.edu for more information

Response:
Additional information on current UF grading policies for assigning grade points can be found here:
- Grading policy, https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.

COURSE POLICIES
Attendance and Make-up Policy
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:
- UF Attendance policy, https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Academic Honesty
As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.” You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."
It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action.
- For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code

Software Use
All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken when appropriate.

Services for Students with Disabilities
Students with disabilities requesting accommodations should first register with the Disability Resource Center by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.
- Disability Resource Center, 0001 Reid Hall, (352) 392-8565, www.dso.ufl.edu/drc/

Campus Helping Resources
Students experiencing crises or personal problems that interfere with their general well-being are

encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- Counseling and Wellness Center, 3190 Radio Road, 392-1575, www.counseling.ufl.edu
  Counseling Services

Groups and Workshops
Outreach and Consultation
Self-Help Library
Wellness Coaching

- U Matter We Care, www.umatter.ufl.edu
- Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161.
- University Police Department, 392-1111 (or 9-1-1 for emergencies), www.police.ufl.edu

Additionally, if you would like orientation on choosing a major, finding an internship, or planning your career, I encourage you to use the university's on-campus resources.

- Career Resource Center, CR-100 Reitz Union, 392-1601, www.crc.ufl.edu/next-level

Course Evaluation Process
Student assessment of instruction is an important part of the effort to improve teaching and learning. At the end of the semester, you are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at:

- Course evaluations, www.evaluations.ufl.edu

Evaluations are typically open during the last two or three weeks of the semester. You will be notified of the specific times when evaluations for this course are open. Summary results of these assessments are available to students at:

- Evaluations summary, www.evaluations.ufl.edu/results

Student Complaints
You can file and resolve any complaints about your experience in this course in the following site:

- Student complaints in residential courses, https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/
- Student complaints in online courses, http://distance.ufl.edu/student-complaint-process/

Grading Scheme
List the types of assessments, assignments and other activities that will be used to determine the course grade, and the percentage contribution from each. This list should have sufficient detail to evaluate the course rigor and grade integrity. Include details about the grading rubric and percentage breakdowns for determining grades.

Response:
1) Weekly quizzes (250 points)
Each quiz will be worth 50 points, and there will be 5 quizzes during the semester. Each quiz will be timed to 30 minutes, and it can only be taken once. Each quiz will consist of eight multiple-choice questions, as well as two essay-style questions. Students can refer to personal notes, websites, or any reference materials to complete the quiz. However, each student must work individually. Make up quizzes will be provided in accordance with the policy described below.
2) Weekly discussion (250 points)
Hydroponic and soilless growth systems are buzzworthy these days. During weeks 1-5, the instructors will post an article from popular media that highlights an advantage, challenge, or opportunity faced by the industry. Students will write a 150-word reaction piece (by Wednesday each week), and comment on two reaction pieces from classmates (by Sunday each week). Both the reaction piece and the comment are to be submitted in the Discussions tab in canvas. Participation in the discussion will be graded on a weekly basis using the following rubrics:
Reaction piece grading criteria to be scored out of 5 points:
-The reaction piece reflects that the student read and understood the assigned article.
-The reaction piece has a clear purpose: inform, persuade, or raise an interesting question.
-The reaction piece was written following the instructions (minimum word requirement).

-The reaction piece is engaging and moves the conversation forward.
-The reaction piece is written using professional grammar, punctuation, and vocabulary.
Peer comments grading criteria to be scored out of 5 points:
-Comments are substantive and reflect that the student read and understood classmates' reaction pieces.
-Comments are engaging and move the conversation forward.
-Comments indicate agreement with a classmate's post or offer an alternative viewpoint
-Comments address classmates and instructors in a respectful, professional manner.
-Comments are written using professional grammar, punctuation, and vocabulary.

3) Nutrient solution formulation exercise (150 points)
The calculations necessary to mix a nutrient solution are critical for hydroponic production. This take-home exercise will test your quantitative skills to formulate a nutrient solution. The assignment will be posted on July 23rd and it is due on July 29th at 11:59PM. You can refer to personal notes, websites, or any reference materials, but you must work individually. You must show all calculations either through a scanned document or a spreadsheet. If your calculations are carried out by hand, please write as legibly as possible.
4) Hydroponic systems practicum (150 points)
This course includes five hands-on practical activities where students get to assemble, operate, disassemble, and sanitize hydroponic systems. Each week, there will be assigned reading materials that must be completed before the lab session. We will meet in Fifield 2316 to receive instructions and carry out demonstrations for the practicum. Then, the class moves to greenhouse 441 east in the Horticultural Sciences Teaching Garden, where the practical activities will happen. We will work in teams of 3 students. Participation in the practical activities will be evaluated by your peers and the instructor after each activity using the following rubric. Peer evaluation scores from each activity will be averaged and added to the instructor score. The sum of scores in all activities will be your total score for the practicum.
Performance criteria to be scored out of 5 points:
- The student is able to identify and describe necessary basic concepts for completion of the project.
- The student contributed to completing the task according to the instructions.
- The student is responsible for an element of the team's success.
5) Final exam (200 points)
The final exam will be a take-home comprehensive test. Students will be presented with a hydroponic production scenario and asked to select among available technologies, strategies, and tradeoffs. The final exam will be posted on August 6th and it is due on August 10th at 11:59PM. The final exam can be submitted as a .doc or .pdf file in Canvas. Students can use reference materials (class slides, textbooks, etc.), but they must work individually and cite their sources as appropriate.

Grading scale
895-1000 A
865-<895 B+
795-<865 B
765-<795 C+
695-<765 C
665-<695 D+
595-<665 D
<595 E

Instructor(s)
Enter the name of the planned instructor or instructors, or "to be determined" if instructors are not yet identified.

Response:
Gerardo Nunez (Horticultural Sciences)
Celina Gomez (Environmental Horticulture)