Date Submitted: 04/03/23 2:21 pm

Viewing: BREWCP : Brewing Science, Certificate of Proficiency

Last approved: 05/14/21 8:16 am

Last edit: 08/22/23 3:23 pm

Changes proposed by: knewland

Catalog Pages Using this Program

Food Science (FDSC)

Submitter: User ID: knewland ~~hamilton~~ Phone: 575-4605 ~~575-4601~~

Program Status Active

Academic Level Undergraduate

Type of proposal Certificate

Select a reason for this modification

Making Minor Changes to an Existing Certificate, Degree or Program (including 15 or fewer hours, admission/graduation requirements, Focused Studies or Tracks)

Effective Catalog Year Fall 2024

College/School Code

Bumpers College of Agricultural, Food, and Life Sciences (AFLS)

Department Code

Department of Food Science (FDSC)

Program Code BREWCP

Degree Certificate of Proficiency

CIP Code

In Workflow

1. AFLS Dean Initial
2. Director of Curriculum Review and Program Assessment
3. Registrar Initial
4. Institutional Research
5. FDSC Chair
6. FDSC Curriculum Committee
7. AFLS Faculty
8. AFLS Dean
9. ARSC Dean
10. ENGR Dean
11. Global Campus
12. Provost Review
13. Undergraduate Council
14. Faculty Senate
15. Provost Final
16. Registrar Final
17. Catalog Editor Final

Approval Path

1. 08/17/23 11:06 am Lona Robertson (ljrobert): Approved for AFLS Dean Initial
2. 08/22/23 3:25 pm Lisa Kulczak (lkulcza): Approved for Director of Curriculum Review and Program Assessment

3. 08/22/23 3:31 pm Gina Daugherty (gdaugher): Approved for Registrar Initial
4. 08/22/23 3:32 pm Doug Miles (dmiles): Approved for Institutional Research
5. 09/08/23 2:14 pm Jeyamkondan Subbiah (jsubbiah): Approved for FDSC Chair
6. 09/22/23 2:17 pm Nathan Kemper (nkemper): Approved for FDSC Curriculum Committee
7. 09/23/23 10:23 pm Fionna Goggin (fgoggin): Approved for AFLS Faculty
8. 09/25/23 8:50 am Lona Robertson (ljrobert): Approved for AFLS Dean
9. 09/25/23 8:52 am Christopher Liner (liner): Approved for ARSC Dean
10. 09/25/23 3:21 pm Kevin Hall (kdhall): Approved for ENGR Dean
11. 09/25/23 3:39 pm Suzanne Kenner (skenner): Approved for Global Campus

12. 09/25/23 4:20 pm Jim Gigantino (jgiganti): Approved for Provost Review
13. 10/27/23 5:25 pm Lisa Kulczak (lkulcza): Approved for Undergraduate Council

History

1. May 13, 2019 by Wesley Stites (wstites)
2. May 14, 2021 by Cathy Hamilton (hamilton)

01.1002 - Food Technology and Processing.

Program Title

Brewing Science, Certificate of Proficiency

Program Delivery Method

On Campus

Is this program interdisciplinary?

Yes

College(s)/School(s)

College/School Name
Bumpers College of Agricultural, Food, and Life Sciences (AFLS)
College of Engineering (ENGR)
Fulbright College of Arts and Sciences (ARSC)

Does this proposal impact any courses from another College/School?

Yes

College(s)/School(s)

College/School Name
Bumpers College of Agricultural, Food, and Life Sciences (AFLS)
Fulbright College of Arts and Sciences (ARSC)

College/School Name
College of Engineering (ENGR)

What are the total hours needed to complete the program? 15

Program Requirements and Description

Requirements

The BREW Certificate ~~This~~ program is designed to provide students with a theoretical and practical introduction to brewing and fermentation. This certificate requires 15 credit hours.

Required courses		**9**
~~FDSC 2723~~	~~Introduction to Brewing Science~~	~~3~~
~~BIOL 2723L~~	~~Course BIOL 2723L Not Found~~	~~3~~
~~**Required internship, special problems, or honors research project**~~		~~**3**~~
~~Internship~~		
~~Students could participate in an approved three credit hour internship with a brewing industry partner. A three credit hour internship should involve approximately 120-130 hours of work with the partner. The internship need not be completed in a single semester, although that is acceptable. At the end of the final semester of the internship, students would have to present a written and oral report of the work performed and lessons learned.~~		
~~Special problems or research hours~~		
~~Students could complete three credit hours working on a practical research problem under the supervision of a faculty member in FDSC, BISC, CHEM, BENG, or CHEG. The topic of this work should be approved for relevance to the certificate before the work begins and reviewed if it changes substantially during the course of the work. Work that involves industry partners is particularly encouraged. At the end of the final semester of the work, students would have to present a written and oral report of the work performed and lessons learned. Credit hours and work done for an honors degree can satisfy this requirement, but if honors work is used, it must include at least one credit hour in three different semesters.~~		
~~**Elective courses**~~		~~**6**~~
BIOL 4723L	Laboratory in Microbial Fermentation	
or BREW 4573	Production Design and Analysis of Beer	

FDSC 4523 or FDSC 5523	Brewing Science	
Required internship, special problems, or honors research project - 3 hours [1]		
Electives - Choose 6 hours from the following [2]		**6**
BIOL 2013	General Microbiology (ACTS Equivalency = BIOL 2004 Lecture)	
or BIOL 4043	Prokaryote Biology	
BIOL 2533	Cell Biology	
or BIOL 2323	General Genetics	
CHEM 2263	Analytical Chemistry Lecture	
CHEM 2613	Organic Physiological Chemistry (ACTS Equivalency = CHEM 1224 Lecture)	
or CHEM 3613	Organic Chemistry II	
FDSC 2401	Uncorked: Vines to Wines	
or FDSC 2401H	Honors Uncorked: Vines to Wines	
FDSC 2523	Sanitation and Safety in Food Processing Operations	
FDSC 2741	Brewing Brilliance: Exploring the General Science of Fermented Beverages (Beer, Wine, and Spirits)	
FDSC 3103	Principles of Food Processing	
~~FDSC 2603~~	~~The Science of Cooking~~	
FDSC 4122	Food Microbiology	
FDSC 4413	Sensory Evaluation of Food	
BREW 4573	Production Design and Analysis of Beer	
or BREW 5573	Production design and analysis of Beer	
CHEG 2133	Fluid Mechanics	
CHEG 3144	Heat and Mass Transfer	
BENG 3113	Measurement and Control for Biological Systems	
BENG 3733	Transport Phenomena in Biological Systems	
~~HIST 1213~~	~~Course HIST 1213 Not Found~~	
Total Hours		15

[1] Internship - Students could participate in an approved three credit hour internship with a brewing industry partner. A three credit hour internship should involve approximately 120-130 hours of work with the partner. The internship

need not be completed in a single semester, although that is acceptable. At the end of the final semester of the internship, students would have to present a written and oral report of the work performed and lessons learned. Special problems or research hours - Students could complete three credit hours working on a practical research problem under the supervision of a faculty member in FDSC, BISC, CHEM, BENG, or CHEG. The topic of this work should be approved for relevance to the certificate before the work begins and reviewed if it changes substantially during the course of the work. Work that involves industry partners is particularly encouraged. At the end of the final semester of the work, students would have to present a written and oral report of the work performed and lessons learned. Credit hours and work done for an honors degree can satisfy this requirement, but if honors work is used, it must include at least one credit hour in three different semesters.

2

To broaden the student's exposure to the skills needed in brewing and fermentation, for currently enrolled undergraduate students, at least one of these courses must be in a different department from the department of the student's major, and that course must also be outside of those already required for the student's major(s). If the student already holds a degree, the course must be a new one outside of the previous degree program.

~~This certificate requires 15 credit hours of work, selected from the list below. Students must take two courses in brewing, one lecture and one lab, complete three credit hours of an internship, research, or special problems course, and then take two additional courses in FDSC, BIOL, CHEM, BENG, or CHEG. To broaden the student's exposure to the skills needed in brewing and fermentation, for currently enrolled undergraduate students, at least one of these additional courses must be in a different department from the department of the student's major, and that course must also be outside of those already required for the student's major(s). If the student already holds a degree, the course must be a new one outside of the previous degreeprogram.~~

8-Semester Plan

Are Similar Programs available in the area?

No

Estimated Student Demand for Program	12
Scheduled Program Review Date	2029-2030 ~~2025-2026~~

Program Goals and Objectives

Program Goals and Objectives
Certificate program to provide graduates with improved job opportunities in the craft brewing industry. Support the craft beer industry in Arkansas.

Learning Outcomes

Learning Outcomes
At the end of this program students will be able to: 1. Describe the basic history, legal aspects, and economic impacts of brewing and fermentation.

Learning Outcomes
2. Describe the basic chemistry and biology of fermentation and brewing. 3. Conduct basic fermentation processes and carry out basic brewing industry practices.

Description and justification of the request

Description of specific change	Justification for this change
Changing list of courses in program. Please note: FDSC 4422/5522 has been requested as a change to current FDSC 2723. It is going through the approval process now. FDSC 2741 is a new course that is also going through approval process.	Several courses are no longer offered. There are also new courses being offered in the department that can be applied to this program.

Upload attachments

Certificate of Proficiency in Brewing Science Course List With Changes.docx
Certificate of Proficiency in Brewing Science Course List .docx
Brewing Cert proposed updates board approval.pdf

Reviewer Comments

Lisa Kulczak (lkulcza) (08/22/23 3:23 pm): Updated scheduled program review date; added course information for courses currently in approval process so proposal reflects correct program requirements.

Key: 675