

Date Submitted: 04/25/24 10:14 am

Viewing: **BREWCP : Brewing Science, Certificate of Proficiency**

Last approved: 01/03/24 12:31 pm

Last edit: 09/11/24 5:16 pm

Changes proposed by: knewland

Catalog Pages Using
this Program

[Food Science \(FDSC\)](#)

Submitter: User ID: knewland Phone:
575-4605

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 2025

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. 04/22/24 9:23 am
Vicky Watkins (watkinsv): Rollback to Initiator
2. 04/25/24 10:18 am
Lona Robertson (ljrobert): Approved for AFLS Dean Initial
3. 08/26/24 4:01 pm
Lisa Kulczak (lkulcza): Approved for Director of

- Curriculum Review
and Program
Assessment
4. 08/27/24 2:30 pm
Gina Daugherty
(gdaugher):
Approved for
Registrar Initial
 5. 08/27/24 5:51 pm
Doug Miles
(dmiles): Approved
for Institutional
Research
 6. 08/29/24 8:04 am
David Caldwell
(caldweld):
Approved for FDSC
Chair
 7. 11/21/24 1:23 pm
Nathan Kemper
(nkemper):
Approved for FDSC
Curriculum
Committee
 8. 11/21/24 2:05 pm
Casey Owens
Hanning
(cmowens):
Approved for AFLS
Faculty
 9. 11/21/24 2:10 pm
Lona Robertson
(ljrobert): Approved
for AFLS Dean
 10. 11/22/24 3:01 pm
Christopher Schulte
(cschulte):
Approved for ARSC
Dean
 11. 11/26/24 1:27 pm
Kevin Hall (kdhall):

Approved for ENGR
Dean

12. 11/26/24 1:48 pm
Suzanne Kenner
(skenner): Approved
for Global Campus

13. 11/26/24 3:37 pm
Jim Gigantino
(jgiganti): Approved
for Provost Review

14. 12/13/24 6:04 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)
3. Jan 3, 2024 by Katie Newland (knewland)

01.1002 - Food Technology and Processing.

Program Title

Brewing Science, Certificate of Proficiency

Program Delivery

Method

On Campus

Is this program interdisciplinary between two or more colleges or schools?

Yes

College(s)/School(s)

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

College/School Name

Fulbright College of Arts and Sciences (ARSC)

Do the proposed changes impact any specific course(s) from another college or 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 of Engineering (ENGR)~~

What are the total
hours needed to
complete the
program?

15

Program Requirements and Description

Requirements

The Brewing Science Certificate of Proficiency is designed to provide students with a theoretical and practical introduction to brewing and fermentation. This certificate requires 15 credit hours.

Required courses

9

~~BIOL 47203~~ ~~Laboratory in Microbial Fermentation~~

~~or BREW 45703~~ ~~Production Design and Analysis of Beer~~

~~FDSC 45203 or~~ ~~Brewing Science~~
~~FDSC 55203~~

FDSC 45203 Brewing Science

or FDSC 55203 Brewing Science

BREW 45703 Production Design and Analysis of Beer

or BREW 55703 Production Design and Analysis of Beer

Required internship, special problems, or honors research project - 3 hours ¹

Electives - Choose 6 hours from the following ²

6

BIOL 20003 General Microbiology (ACTS Equivalency = BIOL 2004 Lecture)

or BIOL 40403 Prokaryote Biology

BIOL 25473	Cell Biology
or BIOL 23373	General Genetics
CHEM 22673	Analytical Chemistry Lecture
CHEM 26103	Organic Physiological Chemistry (ACTS Equivalency = CHEM 1224 Lecture)
or CHEM 36203	Organic Chemistry II
FDSC 24001	Uncorked: Vines to Wines
or FDSC 240H1	Honors Uncorked: Vines to Wines
FDSC 25203	Sanitation and Safety in Food Processing Operations
FDSC 27401	Brewing Brilliance: Exploring the General Science of Fermented Beverages (Beer, Wine, and Spirits)
FDSC 27401	<u>Brewing Brilliance: Exploring the General Science of Fermented Beverages (Beer, Wine, and Spirits)</u>
FDSC 31003	Principles of Food Processing
FDSC 41202	Food Microbiology
FDSC 44103	Sensory Evaluation of Food
CHEG 21303	Fluid Mechanics
CHEG 31404	Heat and Mass Transfer
BENG 31103	Measurement and Control for Biological Systems
BENG 37303	Transport Phenomena in Biological Systems

Total Hours

15

1

Internship — Students could participate in an approved three credit hour internship with a brewing industry partner. A 3-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 food science, biology, chemistry, biological engineering, or chemical engineering. 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.

8-Semester Plan

Are Similar Programs available in the area?

No

Estimated Student Demand for Program 12

Scheduled Program Review Date 2029-2030

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.
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
Removing BIOL 47203 as it is no longer offered. Added back in BREW 45703/55703, removed by mistake	Removing BIOL 47203 as it is no longer offered

Upload attachments

[Certificate of Proficiency in Brewing Science Final Course List.docx](#)

Reviewer Comments

Vicky Watkins (watkinsv) (04/22/24 9:23 am): Rollback: Course changes made to proposal do not reflect the attached program list.

Lisa Kulczak (lkulcza) (06/10/24 5:47 pm): Updating courses not found now that those have completed the approval process.

Lisa Kulczak (lkulcza) (08/12/24 4:53 pm): Adjusted effective date to fall 2025.

Lisa Kulczak (lkulcza) (08/12/24 5:21 pm): Removed AFLS and ENGR from the list of colleges impacted by specific course changes included in this proposal.

Gina Daugherty (gdaugher) (08/27/24 2:30 pm): Removed ENGR Dean from workflow.