

Date Submitted: 12/08/20 8:35 am

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

Last approved: 05/13/19 6:05 pm

Last edit: 12/08/20 9:29 am

Changes proposed by: hamilton

Catalog Pages Using  
this Program

[Brewing Science \(BREW\)](#).

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

Submitter: 575-4601      User ID: wstites      Phone:

Program Status      Active

Academic Level      Undergraduate

Type of proposal      Certificate

Select a reason for this modification

Making Minor Changes to an Existing Degree (e.g. changing 15 or fewer hours, changing admission/graduation requirements, adding/changing Focused Study or Track)

Effective Catalog Year      Fall 2021

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 Program Assessment and Review**
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. **University Course and Program Committee**
14. Faculty Senate
15. Provost Final
16. Provost's Office-- Notification of Approval
17. Registrar Final
18. Catalog Editor Final

## Approval Path

1. 12/08/20 8:58 am  
Lona Robertson (ljrobert): Approved for AFLS Dean Initial
2. 12/08/20 9:29 am  
Alice Griffin (agriffin): Approved for Director of

- Program  
Assessment and  
Review
3. 12/08/20 10:43 am  
Lisa Kulczak  
(lkulcza): Approved  
for Registrar Initial
  4. 12/08/20 1:29 pm  
Gary Gunderman  
(ggunderm):  
Approved for  
Institutional  
Research
  5. 12/08/20 3:24 pm  
Jeyamkondan  
Subbiah (jsubbiah):  
Approved for FDSC  
Chair
  6. 03/12/21 8:57 am  
Casey Owens  
Hanning  
(cmowens):  
Approved for FDSC  
Curriculum  
Committee
  7. 03/12/21 9:47 am  
Ioannis Tzanetakis  
(itzaneta): Approved  
for AFLS Faculty
  8. 03/12/21 9:49 am  
Lona Robertson  
(ljrobert): Approved  
for AFLS Dean
  9. 03/13/21 9:40 am  
Jeannie Hulen  
(jhulen): Approved  
for ARSC Dean
  10. 03/13/21 2:24 pm  
Norman Dennis

- (ndennis): Approved for ENGR Dean
- 11. 03/15/21 8:07 am  
Suzanne Kenner  
(skenner): Approved for Global Campus
- 12. 03/29/21 11:11 am  
Terry Martin  
(tmartin): Approved for Provost Review

**History**

- 1. May 13, 2019 by  
Wesley Stites  
(wstites)

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)

<b>College/School Name</b>
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)

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

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

## Program Requirements and Description

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### Requirements

This program is designed to provide students with a theoretical and practical introduction to brewing and fermentation. 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 degree program.

### Required courses

<a href="#">FDSC 2723</a>	Introduction to Brewing Science	3
<a href="#">BIOL 2723L</a>	Microbial Fermentation Laboratory	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

<a href="#">BIOL 2013</a>	General Microbiology (ACTS Equivalency = BIOL 2004 Lecture)	6
or <a href="#">BIOL 3123</a>	Prokaryote Biology	
<a href="#">BIOL 2533</a>	Cell Biology	

- or [BIOL 2323](#) General Genetics
- [CHEM 2613](#) Organic Physiological Chemistry (ACTS Equivalency = CHEM 1224 Lecture)
- or [CHEM 3613](#) Organic Chemistry II
- [FDSC 3103](#) Principles of Food Processing
- [FDSC 2603](#) The Science of Cooking
- [FDSC 2523](#) Sanitation and Safety in Food Processing Operations
- [FDSC 4122](#) Food Microbiology
- [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](#) **History of Beer**

Total Hours

15

8-Semester Plan

Are Similar Programs available in the area?

No

Estimated Student 12

Demand for Program

Scheduled Program 2025-2026

Review Date

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**

Description of specific change	Justification for this change
Added HIST 1213 History of Beer to elective list	This is a newly developed course that adds a needed diversity of course options in the elective list and is fully supported by the instructor of the course and the BREWCP University Advisory Committee.

Upload attachments

[History of Beer Syllabus Spring 2021.pdf](#)

Reviewer Comments

**Alice Griffin (agriffin) (12/08/20 9:29 am):** This request will require campus approval.

Key: 675