

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

[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
- 13. 04/16/21 4:40 pm
Alice Griffin
(agriffin): Approved for University Course and Program Committee

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)

| 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 of Engineering (ENGR)

What are the total
hours needed to
complete the
program?

15

Program Requirements and Description

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

FDSC 2723 Introduction to Brewing Science 3

BIOL 2723L 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

6

- [BIOL 2013](#) General Microbiology (ACTS Equivalency = BIOL 2004 Lecture)
- or [BIOL 3123](#) Prokaryote Biology
- [BIOL 2533](#) 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

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 |
|--|---|
| 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