**PROGRAM COMPONENT (Group B) OR NON-SUBSTANTIVE MINOR REQUEST FORM**

**Short Form**

**Instructions:** Please use one form for each request/action. Clearly mark all changes using Track Change or strikethroughs for deletions and underlines for additions. Following the approval of the appropriate college curriculum committee, a single representative for the college will e-mail the completed form to the Office of the Provost and Executive Vice President, provost@uidaho.edu for approval and then submission to the Academic Publications Editor in the Registrar’s Office for review by the University Curriculum Committee (UCC).

**Deadline:** This form must be submitted to the Office of the Provost and Executive Vice President by December 15th for inclusion in the next available General Catalog and to be available for scheduling beginning with the next summer session.

When applicable a Curriculum Change Form and Course Approval Forms must accompany the short form when submitted to provost@uidaho.edu

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**Submission Information**

This section must be completed

<table>
<thead>
<tr>
<th>College:</th>
<th>Agricultural and Life Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department/Unit:</td>
<td>Food Science</td>
</tr>
<tr>
<td>Dept/Unit Approval Date:</td>
<td>September 28, 2016</td>
</tr>
<tr>
<td>College Approval Date:</td>
<td>October 31, 2016</td>
</tr>
<tr>
<td>CIP code (Consult Institutional Research):</td>
<td>01.1002</td>
</tr>
<tr>
<td>Primary Point of Contact (Name and Email):</td>
<td>Dojin Ryu (<a href="mailto:dryu@uidaho.edu">dryu@uidaho.edu</a>)</td>
</tr>
</tbody>
</table>

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**Rationale and Overview of Program Component Request or Name Change**

This section must be completed

Provide the rationale and overview of this request. Include an explanation of how the department will manage the added workload for a new program component; describe whether the program component curriculum and admissions requirements remain the same; describe the rational for a name change or degree designation change if applicable.

We are requesting a new option, Fermentation Science, under the existing B.S.F.S. Food Science degree program. The School of Food Science has merged the Washington State University’s (WSU) and University of Idaho’s (UI) Food Science programs for a Bachelor of Science degree in Food Science. Fermentation Science is for students interested in yeasts, bacteria and molds, the science behind fermented beverages and foods, and industrial-scale applications of fermentation. The schedule below is only a guideline. Course selection and order taken may deviate according to student’s needs, and in consultation with advisor. Classes are offered on both WSU and UI campuses, so travel is required.

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**Name or Degree Change Only Requests**

Leave blank if not making a name and/or degree change only request

This section to be completed ONLY for changes to the name of: degree, major, minor, option, emphasis, certificate, teaching endorsement. If there are accompanying curriculum or course changes, complete the next section and attach the curriculum and/or course forms. **Note:** a substantive change to a program degree, major, or program component may require a program proposal form.

| Current Name: | |
| New Name: | |
| Current Degree: | |
| New Degree: | |
| Other Details: | |
Program Component Request

Leave blank if not adding, discontinuing, or modifying a program component. Program components consist of option, emphasis, minor, academic certificate less than 30 credits, or teaching endorsement.

Clearly mark all changes to existing program components by using Track Change or strikethroughs for deletions and underlines for additions. A curriculum change form and/or course approval forms associated with this request are required to be submitted with this short form.

Create New:  x  Modify:  Discontinue:  Implementation Date:  Fall 2017
Graduate Level:  Undergraduate Level:  x  Law Level:  Credit Requirement:  122
Are new courses being created:  No  x  Yes  If yes, how many courses will be created:  

If the request is for an option or emphasis enter the associated major and degree:

Major:  Food Science  Degree:  BSFS

Enter the name of the program component in the appropriate row:

Option:  Fermentation Science
Emphasis:
Minor:
Academic Certificate less than 30 credits:
Teaching Endorsement (Major/Minor):

Learning Outcomes and Assessment Information

This section must be completed if program component request section is completed

1. List the intended learning outcomes for the program component, using learner centered statements that indicate what will students know, be able to do, and value or appreciate as a result of completing the program:

SFS Food Science Curriculum Learning Outcomes

- Graduates will be able to demonstrate a level of comprehension of Food Science concepts and analyses equivalent to or greater than that required by the Institute of Food Technologists Core Competencies Guidelines
- Graduates will be able to critically evaluate and summarize a food science issue or problem
- Graduates will be able to apply critical thinking and problem-solving skills to address current challenges in the food industry
- Graduates will be able to communicate effectively in both written and oral format with an audience possessing varying degrees of food science knowledge

Fermentation Option-Specific Learning Outcomes

- Graduates will be able to apply principles of microbial fermentation to the processing of fermented food products ranging from bread to wine
- Graduates will be able to assess industrial selection, processing, preservation, and packing of fermented products to determine overall product safety and quality

Because the fermentation science option falls under the Food Science curriculum, students in the Fermentation option will be required to meet both SFS general and Fermentation option learning outcomes.

2. Describe the assessment process that will be used to evaluate how well students are achieving the intended learning outcomes of the program component:
Both direct and indirect assessment data will be collected (see 4. below for specifics). Data will be compiled and analyzed by a designated SFS faculty member. Student performance in direct assessments and student answers in indirect assessments will be compared to benchmarks to determine whether learning outcomes are being met. Benchmarks will be set using baseline data from several years of assessments at the start of the process.

3. How will you ensure that the assessment findings will be used to improve the program?

Review data collected and develop summary report. Summary report will be shared with faculty during an SFS faculty meeting. Raw assessment data and full analysis will be made available to any interested faculty. During the meeting, the results will be discussed; during and after the meeting, an action plan for going forward and making any necessary changes will be developed. The action plan will be implemented over the next academic year.

4. What direct and indirect measures will be used to assess student learning?

Direct measures:
- Exams and assignment scores from Food Chemistry, Food Microbiology, and Food Product Development will be used to evaluate level of comprehension of Food Science concepts
- Assignments from Food Safety and Quality, Food Processing, and Food Chemistry will be used to evaluate ability to critically evaluate food science issues
- Assignments from Food Safety and Quality and Food Product Development will be used to evaluate critical thinking
- Assignments from Food Processing and Food Product Development will be used to assess communication skills

All artifacts will be collected every 1-3 years.

Indirect measures:
- Senior exit survey and interview (looks at all learning outcomes, collected every year)

5. When will assessment activities occur and at what frequency?

Indirect assessments will occur every year. Direct assessments will occur every 1-3 years.

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**Financial Impact**

This section must be completed if program component request section is completed

<table>
<thead>
<tr>
<th>Greater than $250,000 per FY:</th>
<th>Less than $250,000 per FY:</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Description of financial impact:</td>
<td>Program will use existing faculty and department resources.</td>
<td></td>
</tr>
</tbody>
</table>

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**Distance Education Availability**

This section must be completed if program component request section is completed

To comply with the requirements of the Idaho State Board of Education (SBOE) and the Northwest Commission on Colleges and Universities (NWCCU) the University of Idaho must declare whether 50% or more of the curricular requirements of a program may be completed via distance education. If the program component is to be offered via distance education, additional or different formwork may be required. Contact provost@uidaho.edu for assistance.

The U.S. Department of Education defines distance education as follows:
Distance education means education that uses one or more of the technologies listed below to deliver instruction to students who are separated from the instructor and to support regular and substantive interaction between the students and the instructor, either synchronously or asynchronously. The technologies may include--

1. The internet;
(2) One-way and two-way transmissions through open broadcast, closed circuit, cable, microwave, broadband lines, fiber optics, satellite, or wireless communications devices;

(3) Audio conferencing; or

(4) Video cassettes, DVDs, and CD-ROMs, if the cassettes, DVDs, or CD-ROMs are used in a course in conjunction with any of the technologies listed in paragraphs (1) through (3).

Can 50% or more of the curricular requirements of this program component be completed via distance education? | Yes* | No | x
---|---|---|---

*If Yes, can 100% of the curricular requirements of this program component be completed via distance education? | Yes | No

Geographical Area Availability

This section must be completed if program component request section is completed.

Identify the geographical area(s) this program component can be completed in:

<table>
<thead>
<tr>
<th>Moscow</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coeur d’Alene</td>
<td></td>
</tr>
<tr>
<td>Boise*</td>
<td></td>
</tr>
<tr>
<td>Idaho Falls*</td>
<td></td>
</tr>
</tbody>
</table>

Other** Location(s):

*Note: Programs offered in regions 3, 4, and/or 5 may require additional formwork from the State Board of Education. Contact the Office of the Provost and Executive Vice President for additional information.

**Note: If Other is selected identify the specific area(s) this program component will be offered.
Food Science Major-Fermentation Science Option (B.S.F.S.):

This Bachelor of Science degree requires a total of 122-123 semester hours. At least 40 of the total hours required for the degree must be in upper division courses (300-400 level). Required course work includes the university requirements (see regulation J-3 p.55) and:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 250</td>
<td>General Microbiology</td>
<td>3 cr</td>
</tr>
<tr>
<td>BIOL 255</td>
<td>General Microbiology Lab</td>
<td>3 cr</td>
</tr>
<tr>
<td>BUS 321</td>
<td>Marketing</td>
<td>3 cr</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Principles of Chemistry I</td>
<td>3 cr</td>
</tr>
<tr>
<td>CHEM 112</td>
<td>Principles of Chemistry II</td>
<td>3 cr</td>
</tr>
<tr>
<td>COMM 101</td>
<td>Public Speaking</td>
<td>3 cr</td>
</tr>
<tr>
<td>ENGL 317</td>
<td>Technical Writing</td>
<td>3 cr</td>
</tr>
<tr>
<td>FS 113</td>
<td>Intro to Vines and Wines</td>
<td>4 cr</td>
</tr>
<tr>
<td>FS 220</td>
<td>Food Safety &amp; Quality</td>
<td>3 cr</td>
</tr>
<tr>
<td>FS 301</td>
<td>Food Mycology</td>
<td>3 cr</td>
</tr>
<tr>
<td>FS 302</td>
<td>Food Processing Lab</td>
<td>1 cr</td>
</tr>
<tr>
<td>FS 303</td>
<td>Food Processing</td>
<td>3 cr</td>
</tr>
<tr>
<td>FS 304</td>
<td>Cereal Chemistry and Processing</td>
<td>3 cr</td>
</tr>
<tr>
<td>FS 401</td>
<td>Industrial Fermentations</td>
<td>3 cr</td>
</tr>
<tr>
<td>FS 402</td>
<td>Ciders and other Fermentation Foods</td>
<td>3 cr</td>
</tr>
<tr>
<td>FS 416</td>
<td>Food Microbiology</td>
<td>3 cr</td>
</tr>
</tbody>
</table>
FS 417    Food Microbiology Lab       2 cr  
FS 418    Oral Seminar in Food Science     1 cr  
FS 422    Sensory Evaluation of Food & Wine    3 cr  
FS 423    Sensory Evaluation of Food & Wine Lab   1 cr  
FS 460    Food Chemistry            3 cr  
FS 461    Food Chemistry Lab        1 cr  
FS 465    Wine Microbiology & Processing    3 cr  
FS 466    Wine Microbiology & Processing Lab   1 cr  
FS 489    Food Product Development      3 cr  
FS 498    Internship            cr arr  
PHYS 111   General Physics I         3 cr  
STATS 251   Statistical Methods       3 cr  

One of the following (3 cr):  
BIOL 115   Cells and Evolution of Life      3 cr  
BIOL 154   Intro to Microbiology        3 cr  

One of the following (3-4 cr):  
BIOL 300   Survey of Biochemistry       3 cr  
BIOL 380   Intro to Biochemistry       4 cr  

One of the following (4 cr):  
CHEM 275   Carbon Compound        3 cr  
CHEM 276   Carbon Compounds Lab     1 cr  
CHEM 277   Organic Chem I          3 cr  
CHEM 278   Organic Chem I Lab      1 cr  

One of the following (4 cr):  
MATH 160   Survey of Calculus        4 cr  
MATH 170   Analytical Geometry & Calculus I  4 cr  

One of the following (3 cr):  
PHIL 103   Ethics                   3 cr  
PHIL 351   Philosophy of Science    3 cr  

Courses to total 122 credits for this degree