

## **Request for Authorization to Establish a Bachelor of Science in Fermentation Sciences at Appalachian State University**

Appalachian State University requests authorization to establish a B.S. in Fermentation Sciences degree program (CIP 01.1099).

### **Program Description**

The B.S. in Fermentation Sciences (FER) curriculum has a rigorous science foundation requiring an understanding of chemistry and chemical analysis, biological principles, microbiology, and standard laboratory technique, as well as demonstrated knowledge of how these elements provide the basis for all fermented products and processes. In addition, fundamental aspects of business development and management, economics and accounting, marketing, promotion and tourism as well as legal and social aspects specifically pertaining to agriculture, food, and beverage products are integral to the degree program. The grape and wine industry in the Southeast is in its infancy, experiencing a phase of rapid growth. The North Carolina industry now comprises over 100 wineries, the majority of which are small, private ventures with five or less years in production. Much of the success of wine industries in other states is due to the support of academic institutions, a roll that Appalachian State University has been contributing to for several years in western North Carolina. Aside from fermented beverages, the FER program is also aimed at increasing the number of qualified graduates prepared to enter the fields of bio-processing (fuels, solvents, pharmaceuticals, and food additives), fermented dairy, vegetable, and meat products. A concentration has already been established in FER for chemistry majors at ASU.

### **Relevance to Institutional Mission and Strategic Plan**

The degree program in Fermentation Sciences fits well with the overall mission and vision of ASU and with many of the individual Initiatives and Priorities. Two examples are the following: Priority 1, Initiative 2: Appalachian will intellectually engage students with active, interdisciplinary learning environments and scholarly mentoring. Priority 4, Initiative 1: Appalachian will address the state's workforce needs by recruiting and graduating students in projected areas of need.

### **Highlights from UNC-GA Data Template**

No other public or private college or university in North Carolina offers a similar degree. In the past three years, Appalachian State University has established one masters and seven baccalaureate programs, and has discontinued eight masters and two baccalaureate programs.

### **Outcome of Consultation with Disciplinary Panels**

The panel included faculty members and administrators from ECU, FSU, NCA&T, NCCU, NCSU, and UNCA, in addition to the ASU presenters. There was active discussion of this degree program. The program faculties agree to collaborate with faculty in related programs in North Carolina such as NCSU, WCU, Surry Community College, and Asheville-Buncombe Community College to enhance the breadth of faculty expertise available to the program. They will continue to explore opportunities for collaborative research and teaching. Comparison of curricula will be explored to

match faculty expertise to specific course content. The ASU program faculties have well-established collaborations with the NCSU extension faculty, including Dr. Sara Spayd, Dr. Trevor Phister, and Dr. Jeanine Davis. These individuals will be invited to continue to offer lectures and other teaching resources based on program needs and on faculty schedules.

### **Student Demand**

As discussed in the proposal, the demand for the FER program grows increasingly evident with time. On the ASU campus, the program director receives an average of ten emails per week from students inquiring on enrollment in the program and progress of program development. There is an equal number of requests from students at local community colleges, potential students from elsewhere in North Carolina and throughout the Eastern US, parents of high-school students, industry professionals seeking continuing education and completion of four-year degrees, and those seeking career changes or career development following job loss and exit from the military. The response to this proposed program is expected given the current state of growth of the related industries in the state and the lack of similar programs offered outside of the Western US. Appalachian State University projects full enrollment of the program in its fourth year will be 28 full-time and two part-time students.

### **Opportunities for Graduates of the Program**

ASU receives inquiries from businesses inside the craft food and beverage industry, the wine industry, and the biotechnology industry inquiring on potential graduates from this program. Industries associated with the fermentation sciences range from growth areas such as craft foods and beverages (agri-tourism), agriculture value addition, and the biotechnology industries that are rapidly spreading through western North Carolina. These are all areas where FER graduates will be poised for employment, graduate education, or business development. Over \$2 million in funding from the Federal Small Business Administration, the GoldenLEAF foundation, and the NC Rural Economic Development Center have provided integral support for development of program infrastructure due to the economic value of these industries to the state.

### **Resource Implications**

**Resource needs:** No new facilities, library resources, equipment, or information technology services are needed to implement the proposed degree program. ASU states the campus is prepared to implement and support the program from existing resources if enrollment growth funding is not available.

**Resources allocated:** The College of Arts and Sciences will administer the proposed program. The Dean of the College has previously committed to add one FTE faculty position to the FER program upon approval of the degree. That commitment remains in place. An existing USDA grant (\$150,000) will provide for additional curriculum and course development.

**Funding Formula Calculation:** After four years when the program reaches full projected enrollment, based upon the current enrollment change funding formula, ASU would receive additional funding of approximately \$89,000 if fully funded by the General Assembly.

### **Recommendation**

It is recommended that the Board of Governors approve Appalachian State University's request to establish a B.S. in Fermentation Sciences degree program (CIP 01.1099).