

TO: The Engineering Faculty

FROM: The Faculty of the Agricultural and Biological Engineering Department

RE: New undergraduate course – ABE 35100

The Faculty of the Agricultural and Biological Engineering Department has approved the following new undergraduate course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

FROM: ABE 49500, Industrial Microbial Biotechnology in Germany

Terms Offered: Summer

3 total credits; Experiential

Prerequisites: BE 20200, or BCHM 30700, or CHE 21100

Enrollment History: SS2018, SS2019, SS2022, SS2024 with enrollment of ~ 20 student per session

TO: ABE 35100, Industrial Microbial Biotechnology in Germany

Terms Offered: Summer

3 total credits; Experiential

Prerequisites: BE 20200, or BCHM 30700, or CHE 21100

Course Description:

Since before pre-history, microorganisms have been responsible for what we now recognize as biotechnology applications. Initially used for beverage applications including beer and wine-making and expanding to food applications like leavening dough for bread, or preserving food through pickling. Today, modern fermentation is a multibillion dollar industry that includes a variety of sectors from foods to pharmaceuticals. This course will explore a range of industrial facilities to produce enzymes, pharmaceuticals, foods, and commodity chemicals. We will travel to various parts of Germany to explore these sectors.

RATIONALE:

Study abroad programs benefit students directly through experiential learning. Students not only receive instruction, but gain a deeper understanding of the world beyond themselves. Biological engineering students wishing to study abroad are burdened with finding a program that either fits within the selectives list or must find a department with sufficient equivalent courses to justify a semester abroad. Creating a short term study abroad program has allowed BE students to obtain an experience abroad while receiving meaningful credit towards their degree. The short-term nature of the program – just two weeks in May - also allows students to obtain and complete a summer internship.



Nate Mosier

Department Head

Agricultural and Biological Engineering

Link to Curriculog entry: <https://purdue.curriculog.com/proposal:30883/form>

Syllabus for Course (offered most recently in 2024)
SA 10527 – Summer 2024
Industrial Microbial Biotechnology in Germany
Course Information and Syllabus

Administrative

Course Instructor and Program Leader

Dr. Abby Engelberth

Associate Professor of Agricultural & Biological Engineering and Environmental and Ecological Engineering

Office: ABE 2041B

Email: aengelbe@purdue.edu

Course Chaperone Extraordinaire

Nikki Zimmerman

Graduate Program Administrator

ABE, 1041

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“Office hours” and meetings with Dr. E can be scheduled as needed by each student.

Course Description

Since before pre-history, microorganisms have been responsible for what we now recognize as biotechnology applications. Initially used for beverage applications including beer and wine-making and expanding to food applications like leavening dough for bread, or preserving food through pickling. Today, modern fermentation is a multibillion dollar industry that includes a variety of sectors from foods to pharmaceuticals. This course will explore a range of industrial facilities for the production of enzymes, pharmaceuticals, foods, and commodity chemicals. We will travel to various parts of Germany to explore these sectors.

Equivalent to Biological Science selective for BE students. Check with your home department for how this course will fit within your plan of study.

Learning Outcomes

1. Understand, describe, and calculate quantitative features of microbial biotechnology
2. Understanding and appreciation of German cultural heritage
3. Thoughtful reflection of the cultural differences and similarities of America and Germany.

Instructional Resources

1. Teaching team members
2. Brightspace course pages
3. Assigned readings
4. Course handouts

5. Site visits, lectures, and other experiential learning activities.

No textbook is required. Required readings will be posted and all participants are expected to read each before the corresponding visit as indicated in the itinerary.

Student Performance and Work

The plus/minus grading system applies in this course for grades of “A,” “B,” “C,” and “D.” (e.g., possible “B” grades are: B+, B, and B-). The plus/minus grading system does not apply to “F” grades. Letter grades will be assigned based on the percentage of total points earned at the end of the course:

A 93-100	A- 90.0-92.9	B+ 87.0-89.9
B 83.0-86.9	B- 80.0-82.9	C+ 77.0-79.9
C 73.0-76.9	C- 70.0-72.9	D+ 67.0-69.9
D 63.0-66.9	D- 60.0-62.9	F <60.0

Student performance will be based on assignments, study question responses, and attendance at scheduled professional and academic events in Germany. Students are required to attend all scheduled events and meetings between May 5 - May 19, 2024 in Germany to receive credit for assignments.

Late assignments will not be accepted and the score will be recorded as zero.

Assignments and readings are located in folders for each site visit of the course. Complete the readings before participating in the day’s activities. Please refer also to the detailed itinerary and daily schedule, which is a separate document from the syllabus.

Academic dishonesty

Dishonest conduct as defined in Sections B.2 of the “Regulations Governing Student Conduct, Disciplinary Proceedings, and Appeals” will be reported to the Dean of Students. Other penalties will also apply, depending on the nature of the misconduct.

Excerpt from the Purdue University policy:

Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-a, University Regulations] Furthermore, the University Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972]

Please also refer to Purdue's student guide for academic integrity:

<http://www.purdue.edu/odos/aboutodos/academicintegrity.php>

Regulations Governing Student Conduct, Disciplinary Proceedings, and Appeals

http://www.purdue.edu/studentregulations/student_conduct/regulations.html

Emergency Planning

Purdue’s policy:

“In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor’s

control. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructors or TAs via email or phone. You are expected to read your @purdue.edu email on a frequent basis.”

This syllabus is subject to change. The most current version will be posted on the course website on Brightspace.