



Biosystems and Agricultural Engineering

College of Engineering

The curriculum in biosystems and agricultural engineering is administered jointly by the College of Engineering and the College of Agriculture. Graduates earn the Bachelor of Science in Biosystems and Agricultural Engineering degree.

Biosystems and agricultural engineering provides an essential link between the biological sciences and the engineering profession. This linkage is necessary for the development of production and processing systems involving biological materials that preserve our natural resource base. Students have the latitude to develop an area of specialization relating to environmental engineering, biotechnology, food processing, machine systems, or controlled environment engineering. The curriculum is also ideal preparation for those students wanting to pursue a graduate or professional degree in biomedical engineering or veterinary medicine through the pre-biomedical and pre-veterinary medicine options.

Admission to the degree program is selective. Students should refer to the UK Bulletin for general information concerning admission and graduation requirements.

Degree Requirements

In addition to fulfilling University Studies and College of Engineering requirements, students must complete the agricultural engineering curriculum. The following curriculum meets the requirements for the B.S. degree.

Freshman Year

Table with 2 columns: Course Name, Hours. Rows include BAE 102, CHE 105, ENG 104, MA 113, CE 106.

Second Semester

Table with 2 columns: Course Name, Hours. Rows include BAE 103, CHE 107, CS 221, MA 114, PHY 231, PHY 241.

Sophomore Year

Table with 2 columns: Course Name, Hours. Rows include BAE 201, BIO 150, EM 221, MA 213, PHY 232, PHY 242.

Second Semester

Table with 2 columns: Course Name, Hours. Rows include BAE 202, BIO 152, ENG 2XX, USP, EM 302, MA 214, ME 220.

Junior Year

Table with 2 columns: Course Name, Hours. Rows include CE 341, EE 305, EM 313, Biological Science Elective, Core\*\* or Technical Elective\*\*\*.

Second Semester

Table with 2 columns: Course Name, Hours. Rows include COM 199, ME 325, BAE 305, Core\*\* or Technical Elective\*\*\*, Technical Elective\*\*\*, University Studies\*.

Senior Year

Table with 2 columns: Course Name, Hours. Rows include BAE 402, ME 340, BAE 400, Core\*\* or Technical Elective\*\*\*, Free Elective†, University Studies\*.

Second Semester

Table with 2 columns: Course Name, Hours. Rows include BAE 403, Core\*\* or Technical Elective\*\*\*, Technical Elective\*\*\*, University Studies\*.

\*To be selected from University Studies areas in Social Sciences, Humanities, Cross-Cultural and Electives in consultation with the academic advisor. A minimum of 15 credits in the humanities and social sciences are required.

\*\*A minimum of 9 hours are required from the biosystems and agricultural engineering core courses: BAE 417 Design of Machine Systems, BAE 427 Structures and Environment Engineering, BAE 437 Land and Water Resources Engineering, and BAE 447 Bioprocess Engineering Fundamentals.

\*\*\*A minimum of 12 hours are to be taken in addition to the 9 core hours selected by the student. The technical electives allow the student an opportunity to concentrate or gain depth in one or more of the various specialty areas of biosystems and agricultural engineering. The technical electives must be selected from the courses listed below and approved by the student's academic advisor. Other courses may be considered, each on its individual merit. In selecting technical electives students must concentrate their work in one or more of the professional areas of biosystems and agricultural engineering. These areas include: bio-environmental engineering, food and bioprocess engineering, machine systems/automation engineering and controlled environment engineering. Interested students are encouraged to contact the Department of Biosystems and Agricultural Engineering to discuss technical elective sequences.

Approved technical electives: BAE 417, 427, 435G, 437, 438G, 447, 450, 502, 513, 515, 536, 537, 545, 549, 580, 581, 599; BCH 401G; BME 481G, 501, 530; CE 351, 381, 382, 441, 451, 461G, 471G, 482, 506, 549; CHE 236; CME 425, 462, 599; EE 402G; FSC 434G, 530, 536, 538; KHP 515; ME 321, 344, 406, 440, 501, 542; PLS 366, 566, 575, 576.

†Free electives are any University course excluding more elementary versions of required courses such as pre-calculus math or PHY 211.