Core Courses

The BAE core courses for six specializations are listed below:

<table>
<thead>
<tr>
<th>Specialization</th>
<th>Core BAE courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE</td>
<td>BAE705, BAE840</td>
</tr>
<tr>
<td>BE</td>
<td>BAE740, BAE811, BAE840</td>
</tr>
<tr>
<td>IET</td>
<td>BAE840 and one of the following:</td>
</tr>
<tr>
<td></td>
<td>BAE705, BAE811</td>
</tr>
<tr>
<td>MS</td>
<td>BAE750, BAE840</td>
</tr>
<tr>
<td>NRE</td>
<td>BAE705, BAE768, BAE840</td>
</tr>
<tr>
<td>SE</td>
<td>BAE811, BAE840</td>
</tr>
</tbody>
</table>

Environmental Engineering (EE):

**BAE 705. Irrigation Engineering.** (3) II, on sufficient demand. Design and operative problems on the fundamentals of irrigation system design and management. Soil, plant, and water relationships; pipeline and system hydraulic design; design of irrigation systems; filtration systems and chemigation; sources of water and water quality. Two hours rec. and three hours lab a week. Pr.: BAE 530 and AGRON 305 or CE 522. Pr. or conc.: ME 571.

**BAE 840. Measurement Systems.** (3) I. Theory and application of measurement systems for biological and agricultural systems with emphasis on sensors and data-acquisition systems for measurement of variables related to soils, plants, animals, machines, and processes. Two hours rec. and three hours lab a week. Pr.: BAE 640.

Bioprocessing engineering (BE):

**BAE 811. Particle Technology.** (3) I. Science and behavior of airborne particles or aerosols. Technology and methods for measuring, controlling, and utilizing aerosols in the agricultural and food industries. Specific topics include basic particle mechanics; principles of particle measurement; particle statistics; electrostatic precipitation; condensation; evaporation; dust generation; and filtration. Two hours rec. and three hours lab a week. Pr.: STAT 703 and PHYS 113 or 213.
BAE 840. Measurement Systems. (3) I. Theory and application of measurement systems for biological and agricultural systems with emphasis on sensors and data-acquisition systems for measurement of variables related to soils, plants, animals, machines, and processes. Two hours rec. and three hours lab a week. Pr.: BAE 640.

BAE 740. Biomaterials Processing. (3). I (odd years). Technologies of bio-based material processing including starch extraction (wet milling), plant oil extraction and refining, plant protein extraction and processing, cellulose processing, biofuel production, chemicals bioconversion, and drying technologies of biomaterials. Course is cross-listed with GRSC 740. Three hours rec. a week. Prerequisites: BAE 500 or BAE 575 or GRSC 602.

Information and Electrical Technologies (IET):

BAE 840. Measurement Systems. (3) I. Theory and application of measurement systems for biological and agricultural systems with emphasis on sensors and data-acquisition systems for measurement of variables related to soils, plants, animals, machines, and processes. Two hours rec. and three hours lab a week. Pr.: BAE 640.

And one of the following:

BAE 705. Irrigation Engineering. (3) II, on sufficient demand. Design and operative problems on the fundamentals of irrigation system design and management. Soil, plant, and water relationships; pipeline and system hydraulic design; design of irrigation systems; filtration systems and chemigation; sources of water and water quality. Two hours rec. and three hours lab a week. Pr.: BAE 530 and AGRON 305 or CE 522. Pr. or conc.: ME 571.

BAE 811. Particle Technology. (3) I. Science and behavior of airborne particles or aerosols. Technology and methods for measuring, controlling, and utilizing aerosols in the agricultural and food industries. Specific topics include basic particle mechanics; principles of particle measurement; particle statistics; electrostatic precipitation; condensation; evaporation; dust generation; and filtration. Two hours rec. and three hours lab a week. Pr.: STAT 703 and PHYS 113 or 213.

Machinery Systems (MS):

BAE 750. Analysis and Design of Off-Highway Vehicles. (3) II, on sufficient demand. Analytical study of design, testing, construction, and operating characteristics of off-highway vehicles and machinery. Includes human factors, mobility, and precision agriculture. Two hours rec. and three hours lab a week. Pr.: BAE 536 or ME 574.

BAE 840. Measurement Systems. (3) I. Theory and application of measurement systems for biological and agricultural systems with emphasis on sensors and data-acquisition systems for measurement of variables related to soils, plants, animals, machines, and processes. Two hours rec. and three hours lab a week. Pr.: BAE 640.

Natural Resource Engineering (NRE):
BAE 705. Irrigation Engineering. (3) II, on sufficient demand. Design and operative problems on the fundamentals of irrigation system design and management. Soil, plant, and water relationships; pipeline and system hydraulic design; design of irrigation systems; filtration systems and chemigation; sources of water and water quality. Two hours rec. and three hours lab a week. Pr.: BAE 530 and AGRON 305 or CE 522. Pr. or conc.: ME 571.

BAE 840. Measurement Systems. (3) I. Theory and application of measurement systems for biological and agricultural systems with emphasis on sensors and data-acquisition systems for measurement of variables related to soils, plants, animals, machines, and processes. Two hours rec. and three hours lab a week. Pr.: BAE 640.

Structure and Environment (SE):

BAE 811. Particle Technology. (3) I. Science and behavior of airborne particles or aerosols. Technology and methods for measuring, controlling, and utilizing aerosols in the agricultural and food industries. Specific topics include basic particle mechanics; principles of particle measurement; particle statistics; electrostatic precipitation; condensation; evaporation; dust generation; and filtration. Two hours rec. and three hours lab a week. Pr.: STAT 703 and PHYS 113 or 213.

BAE 840. Measurement Systems. (3) I. Theory and application of measurement systems for biological and agricultural systems with emphasis on sensors and data-acquisition systems for measurement of variables related to soils, plants, animals, machines, and processes. Two hours rec. and three hours lab a week. Pr.: BAE 640.