

# Biosystems Engineering — ABM

## Accelerated Bachelor's/Master's Curriculum for Biosystems Engineering

The Accelerated Bachelor's/Master's degree program is designed to provide an opportunity for highly motivated students to gain an in-depth understanding of Biosystems Engineering beyond that of typical bachelor's level graduates and make them more competitive for industrial positions or for graduate studies. Specifically, the program allows students to take three 6000 level courses (minimum of 9 credit hours) that will count for both the bachelor's and master's degrees. The ABM program can be applied towards the non-thesis or the thesis option of the BSEN M.S. degree. In addition, the ABM program provides an opportunity for students involved in undergraduate research to build on that research and develop it into an M.S. thesis. The availability of an ABM will be useful in recruiting and attracting highly motivated high school students. Finally, the ABM program allows students to obtain a non-thesis M.S. degree in 12 months or obtain a thesis-based M.S. degree in about 18 months after earning a Bachelor of Biosystems Engineering degree. Note that the duration of the thesis-based M.S. degree is highly dependent on the type of research conducted for the M.S. degree. Students who are interested in the ABM program are highly encouraged to discuss with the department head or the BSEN Graduate Program Officer

Below is a chart of all the approved courses that can be taken in the ABM program and what course that replaces at the undergraduate level.

Code	Title	Hours
BSEN 6220	Geospatial Technologies in Biosystems (Replaces BSEN 5220 Geospatial Technologies in Biosystems)	3
BSEN 6230	Waste Management and Utilization for Biosystems (Replaces BSEN 5230 Waste Management and Utilization for Biosystems)	3
BSEN 6280	Life-Cycle Assessment for Biological Systems (Replaces BSEN 5280 Life-Cycle Assessment for Biological Systems)	3
BSEN 6510	Ecological Engineering (Replaces BSEN 5510 Ecological Engineering)	3
BSEN 6520	Watershed Modeling (Replaces BSEN 5520 Watershed Modeling)	3
BSEN 6540	Biomass and Biofuels Engineering (Replaces BSEN 5540 Biomass and Biofuels Engineering )	3
BSEN 6560	Site Design for Biosystems (Replaces BSEN 5560 Site Design for Biosystems)	3
FOEN 6230	Engineered Wood Structure Design (Replaces FOEN 5230 Engineered Wood Structure Design)	3

Courses marked with an asterisk are those that can be substituted by graduate level courses by students enrolled in the ABM program to meet nine undergraduate hours during their senior year and nine graduate hours to be used toward their graduate degree.

### Senior Year for Students in ABM Program - Biosystems Engineering

Senior	Fall	Hours	Spring	Hours
	BSEN 3210 Mechanical Power for Biosystems		3 Literature Core	3
	BSEN 4210 Irrigation System Design		3 Fine Arts Core	3
	BSEN 4300 Professional Practice in Biosystems Engineering		2 BSEN 4310 Engineering Design for Biosystems	3
	PHIL 1040 Business Ethics <b>or</b> 1020 Introduction to Ethics		3 *Biosystems Engineering Elective	3
	*BSEN 5220 Geospatial Technologies in Biosystems		3 *BSEN 5230 Waste Management and Utilization for Biosystems	3
	*Biosystems Engineering Elective		3 UNIV 4AA0 Achieve the Creed	0

### Senior Year for Students in ABM Program - Biosystems Engineering (Bioprocess Engineering Option)

**Senior**

<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>
*BSEN 5280 Life-Cycle Assessment for Biological Systems		3 BSEN 4310 Engineering Design for Biosystems	3
*BSEN 5540 Biomass and Biofuels Engineering		3 Literature Core	3
BSEN 4300 Professional Practice in Biosystems Engineering		2 *BSEN 5230 Waste Management and Utilization for Biosystems	3
PHIL 1020 Introduction to Ethics <b>or</b> 1040 Business Ethics		3 Fine Arts Core	3
*Bioprocessing Engineering Elective		3 *Bioprocessing Engineering Elective	3
*BSEN 5220 Geospatial Technologies in Biosystems		3 UNIV 4AA0 Achieve the Creed	0

**Senior Year for Students in ABM Program - Biosystems Engineering (Ecological Engineering Option)****Senior**

<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>
BSEN 4300 Professional Practice in Biosystems Engineering		2 Literature Core	3
*BSEN 5220 Geospatial Technologies in Biosystems		3 PHIL 1020 Introduction to Ethics <b>or</b> 1040 Business Ethics	3
*BSEN 5510 Ecological Engineering		3 BSEN 4310 Engineering Design for Biosystems	3
*Ecological Engineering Elective		3 *BSEN 5230 Waste Management and Utilization for Biosystems	3
*BSEN 5560 Site Design for Biosystems Ecology Elective		3 *BSEN 5520 Watershed Modeling	3
		3 UNIV 4AA0 Achieve the Creed	0

**Senior Year for Students in ABM Program - Biosystems Engineering (Forest Engineering Option)****Senior**

<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>
*BSEN 5220 Geospatial Technologies in Biosystems		3 BSEN 4310 Engineering Design for Biosystems	3
*BSEN 5560 Site Design for Biosystems		3 *Forest Engineering Elective	3
FOEN 5710 Systems Analysis for Forestry and Biological Operations		3 PHIL 1040 Business Ethics <b>or</b> 1020 Introduction to Ethics	3
FORY 5230 Silviculture		4 Literature Core	3
BSEN 4300 Professional Practice in Biosystems Engineering		2 UNIV 4AA0 Achieve the Creed	0

**Accelerated Master of Science in Biosystems Engineering (non-thesis)**

**First Year**

<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>
BSEN 6250 Deterministic Modeling for Biosystems		3 BSEN 7950 Seminar	1
BSEN/Engineering/STAT Electives		8 BSEN/Engineering/STAT Electives	9
	<b>11</b>		<b>10</b>
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<b>Total Hours: 21</b>			