

Biological Engineering (BS): Environmental Engineering (11BEBS-11BEBEE)

Freshman Year

Fall Semester	Credit	Spring Semester	Credit
CH 101 Chemistry, A Molecular Science ^{1B}	3	CH*** Chemistry Elective ²	4
CH 102 General Chemistry Lab ^{1B}	1	MA 241 Calculus II ^{1A}	4
E 101 Introduction to Engr & Prob Solv ¹	1	PY 205 Physics for Engineers & Scientists I ^{1B}	3
E 115 Intro to Computing Environ	1	PY 206 Physics for Engineers & Scientists I Lab	1
ENG 101 Academic Writing & Research ^{1H}	4	EC 205 Economics (GEP Soc Sci Req ^D) ³	3
MA 141 Calculus I ^{1A}	4		
HES_*** Health & Exercise Studies Course ^E	1		
	15		15

Sophomore Year

Fall Semester	Credit	Spring Semester	Credit
BAE 200 Comp Meth in Biol Engr	2	BAE 203 Intro to Autocad Civil 3D & ArcMap	2
MAE 206 Engineering Statics or CE 214 Engineering Mechanics-Statics ¹	3	BAE 204 Intro to Eco & Anv Engr	2
MA 242 Calculus III	4	MAE 208 Engineering Dynamics ¹	3
PY 208 Physics for Engineers & Scientists II ^B	3	MA 341 Applied Diff Equations	3
PY 209 Physics for Engineers & Scientists Ii Lab	1	MAE 201 Engr Thermodynamics I	3
BIO 181 Intro BioL: Ecol, Evol & Biodiv ^B or BIO 183 Intro BioL: Cell & Mol Bio ^B	4	SSC 200 Soil Science ^B	3
	17		16

Junior Year

Fall Semester	Credit	Spring Semester	Credit
BAE 325 Intro Geomatics	3	BAE 401 Instrumentation for Bio Sys	3
BAE 302 Transport Phenomena	3	BAE 472 Irrigation & Drainage	3
BAE 371 Fundamentals of Hydro for Engr	3	MAE 214 Solid Mechanics or CE 313 Mechanics of Solids ¹	3
CE 382 Hydraulics ¹	3	ST 370 Prob & Statistics for Engr	3
BAE 305 BE Circuits	4	Advanced Biology Elective ⁴	3
	16		15

Senior Year

Fall Semester	Credit	Spring Semester	Credit
BAE 451 Engr Design I	2	BAE 452 Engr Design II	2
BAE 478 Agricultural Waste Mgmt Engr Elective ⁵	3	BAE Elective ⁷	3
Ethics (GEP Interdisciplinary Persp. Elec. ^G) ⁶	3	GEP Social Science Elective ^D	3
GEP Humanities Requirement ^C	3	GEP Interdisciplinary Persp. Elec. ^G	2
ENG 331 Comm. Engr. & Tech. or ENG 333 Comm. Sci. & Res.	3	GEP Additional Breadth Requirement ^F	3
		GEP Humanities Requirement ^C	3
		HES_*** Health & Exercise Studies Course ^E	1
	17		17

Minimum Credit Hours Required for Graduation* :

128

Major/Program requirements and footnotes

- 1** Must be completed with a grade of C- or higher.
- 2** Choose from CH 201 & 202, CH 220 & 222, or CH 221 & 222.
- 3** Choose from EC 201 or 205, or ARE 201
- 4** Choose from SSC 332, PB/BIO 360 or PB/BIO 321
- 5** Choose from BAE 473, 481, or 578
- 6** Choose from IDS 201, ST 302, or STS 304, which satisfies Interdisc. Perspec. Reqt.
- 7** Chose from BAE 322, 361 and 481

***General Education Program (GEP) requirements**

To complete the requirements for graduation and the General Education Program, the following credit hours and co-requisites must be satisfied. University approved GEP course lists for each category can be found at <https://oucc.dasa.ncsu.edu/general-education-program/>.

A. Mathematical Sciences (6 credit hours – one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 141, MA 241

B. Natural Sciences (7 credit hours – include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 101, CH 102, BIO 181, SSC 200, PY 205, PY 208

C. Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: None

D. Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: EC 201, 205 or ARE 201

E. Health & Exercise Studies (2 credit hours – at least one 100-level Health & Exercise Studies Course)

Choose from the University approved GEP Health & Exercise Studies course list.

F. Additional Breadth (3 credit hours to be selected from the following checked University approved GEP course lists)

Humanities/Social Sciences/Visual and Performing Arts or Mathematical Sciences/Natural Sciences/Engineering

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: None

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: None

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: None

K. Foreign Language proficiency

Proficiency at the FL_102 level is required for graduation.