

ENGINEERING PROGRAM REQUIREMENTS CHECKLIST

2017–19 catalog

September 2017

Distribution and other general requirements

You may graduate under your choice of the catalog in effect:

- when you entered Beloit,
- when you declare a major, or
- when you graduate.

Requirements in the 2017–19 catalog:

- W: 3 writing courses (C grade or higher)
program requirement for writing (or another form of communication) (no additional requirement)
- QR: quantitative reasoning (eng'ng core courses will fulfill)
- C: intercultural literacy
- 1S: conceptual and foundations (eng'ng core courses will fulfill)
- 2A: artistic/creative
- 3B: social
- 4U: phys/bio (eng'ng core courses will fulfill)
- 5T: texts
- Lib Arts in Practice: you need to try to do an internship
- Capstone experience: We argue that going to eng'ng univ. is such
31 units total (incl. transfer of courses back from eng'ng university)
- GPA ≥ 2 (well, you need ≥ 3 for most eng'ng universities)
- at least 16 units in residence at Beloit College

Expectations:

- 2 units (or equivalent activities) in study/experience of a language/culture not your own, and of the relations between nations/global entities in a global context
- complete a My Academic Plan during sophomore year

Engineering core

Chem 220 (spring)	_____	other Chem	_____
Math 110	_____	Math 115	_____
Math 201 (spring even years)	_____	possibly more Math (see below)	_____

Notes: Math 201 (Spring 2018), sometimes known as **Calculus III**, is required by virtually all engineering schools. If you don't take it at Beloit, you may need to take it during a summer. For schools (such as UW–Madison) that require only 2 hrs in **differential equations**, Physics 206 should do; Math 190 (Differential Equations) (Spring 2019) is for those who need 3 hrs or more. Some engineering schools and fields require **linear algebra**, Math 175.

UW–Madison requires stats (all engineering tracks), & math'l statistics (Math 205 & 310, offered 2018-19) in industrial track.

Phys 101 (fall only)	_____	Phys 102 (spring only)	_____
Phys 206 (fall only)	_____		
2 units of CS, preferably including CSCI 204	_____		_____

Additions to the core for certain fields

specific recommendations:

Chemical:	Chem 230 (fall only)	_____	Chem 235 (spring)	_____
Civil:	Geo 100 OR Geo 110	_____	Phys 330	_____
Electrical:	Phys 210	_____	Phys 220	_____
Mechanical	Phys 330	_____		

other fields two courses chosen in consultation with engineering advisor

Additions for particular engineering universities

August 2017

(may be completed at Beloit or at the engineering university; best to do them here if you can)

Requirements are given here in semester hours or semester-hour equivalents:

1 Beloit unit = 4 semester hrs = 6 quarter hrs.

AFFILIATES

Columbia: English composition (Writing 100 or English 160) _____
Economics (Econ 199) _____
plus specific courses for the particular engineering field
(see annotated Pre-Combined Plan Curriculum Guide for details (from Prof. Campbell))
You can sign up for communications specific to the Combined Plan program by visiting
<https://apply.college.columbia.edu/register/request>

Rensselaer: 24 sem. Hrs humanities and social sciences, including
8 hrs. humanities _____
8 hrs. soc. sci. _____
8 more hrs _____
---of which at least two courses must be in the same dept.
2 “communication-intensive” courses, at least one wrting intensive and another
taught in the student’s major

Washington U.: 15 sem. hrs. of social sciences and humanities, including 6 sem hrs each of
humanities. _____ social science _____

In addition, there are some department-specific requirements:

- Biomedical Engineering: a one-year biology sequence that covers cellular, molecular and developmental biology and genetics and a second semester of general chemistry with lab
- Chemical Engineering: one semester of biology that covers cellular, molecular and developmental biology, a second semester of general chemistry with lab [this is part of the Beloit Engineering Core Requirements], and a one-year sequence of organic chemistry with lab. Also, physical chemistry and a course on energy and environment from a scientific point of view are strongly recommended.
- Computer Science & Computer Engineering: a second computer programming course [this is part of the Beloit Engineering Core Requirements]. Note: Although Washington University does not require Computer Science majors (only) to complete two chemistry courses, the Beloit Engineering Core does, for the Beloit degree.

As engineers design things with precision...as opposed to architects, who design with a focus on artistic value...I see this as an important course. .

Details of translation of Beloit courses to Washington University are at
<http://registrar.seas.wustl.edu/EVALS/evals.asp?school=BELOIT%20COLLEGE>

FORMER AFFILIATES

Illinois: see <https://courses.illinois.edu/gened/2015/fall> , and <http://engineering.illinois.edu/admissions/undergraduate/transfers.html>

Composition I
Advanced Composition),
Cultural Studies: Non-Western/U.S. Minority Culture(s),
Cultural Studies: Western/Comparative Culture(s)
Humanities & the Arts
Language Requirement (3 yrs in HS or 3 semesters college; 2 semesters college for transfer)
Natural Sciences & Technology
Quantitative Reasoning
Social & Behavioral Sciences.

Also, some departments require specific courses (e.g., Civil Eng'ng requires econ).

Michigan: English composition _____
at least 17 sem. hrs. of humanities and social science, including
6 hrs. humanities _____
6 hr. sequence in humanities or social science _____
5 additional hrs. _____
plus further specifics for certain engineering disciplines:
atmospheric and oceanic: 19 hrs. instead of 17
civil: economics
computer: courses in at least two depts., 8 hrs. foreign lang.
engineering science: 19 hrs. instead of 17
materials science: <= 4 hrs. for. Lang can count toward humanities requirement

OTHER FORMER AFFILIATES (details not updated)

Georgia Tech: (Georgia Tech is on the quarter system: 1 Beloit unit = 6 quarter hrs.)
phys. ed. (2 courses) _____
6 other units (24 sem. hrs. = 36 qtr. hrs.), including
12 sem. hrs. of English, music, foreign languages
(first-year for. lang. counts only if have second year, too),
including
Engl. lit. _____
other _____ other _____
12 sem. hrs. of "social science"
(hist., phl. of sci., gov't., soc., psych., econ.), including
US history _____ US gov't _____
other _____
At Ga. Tech: tests of writing, Georgia and US hist. and constitutions.

Iowa State: English comp. (6 hrs) _____
(some Beloit W courses may qualify; inquire)
English literature _____

plus socio-humanistic requirements that vary with engineering field:

- aeronautical: 10 hrs.
- agricultural: speech, economics, total of 18 hrs
- ceramic: 17 hrs.
- chemical: 16 hrs.
- civil: communications, 20 hrs. total; also, statistics
- construction: psychology, accounting, speech, economics,
24 hrs. total, including a follow-up course in either psych or econ;
also, geology, statistics
- electrical: communications, 21 hrs. total
- engineering operations: acc'ting, psych., econ, speech, 24 hrs. total
- engineering science: communications, 17 hrs. total
- industrial: psychology, speech, 15 hrs. total, including a sequence;
also, mathematical statistics
- mechanical: economics, 12 hrs. total, including
at least 6 in humanities and including a sequence
- metallurgical: 16 hrs.
- nuclear: speech, macroeconomics, microeconomics, 18 hrs. total
- surveying: 16 hrs.; also, statistics, geology

Northwestern: (Northwestern is on the quarter system: 1 Beloit unit = 6 quarter hrs.)

- linear alg. (Math 175) _____
- thermo. (Phys 320) (spring) _____
- speech (Thtr Arts 100) (spring) _____
- theme requirement: 19 hrs., including 5.33 hrs. in each of
 - hist. and values _____
 - social science _____
 - fine arts and lit. _____

(this sounds pretty much like an interdisciplinary minor at Beloit)
recommended: electronics (Phys. 220) (fall only)

Purdue: English composition _____

- speech (Thtr Arts 100) (spring only) _____
- 18 hrs. additional humanities and social sciences