Wabash Dual Degree Engineering Programs
Advisor Checklist & Requirements

Program Structure

Wabash's dual degree engineering partner schools are Purdue, Columbia, and Washington University in St. Louis.

Typical timeline: 3 years at Wabash + 2/3 years at engineering partner school (2 years at Purdue/Columbia or 3 years at WashU).

Degrees:

- Purdue, Columbia: Wabash A.B. + B.S. in Engineering/Applied Science
- WashU: Wabash A.B. + B.S. + M.S. in Engineering
- Students may major in any Wabash discipline; a math minor (or major) is almost always required in practice.

Eligibility & GPA Thresholds

Pre-engineering coursework must be completed at Wabash, plus minimum GPAs:

- Washington University: Overall & required courses GPA: ≥ 3.25
- Columbia University: Overall & required courses GPA: ≥ 3.30
- Purdue University: Overall & required courses GPA: ~3.3–3.5 (depending on program)

These are **minimums**; stronger records are advantageous.

Common Core Requirements (All Three Schools)

Students should complete the following at Wabash (or Wabash-approved equivalents):

Mathematics:

- Calculus I & II (**MAT-111 & MAT-112**)
- Linear Algebra (**MAT-223**)
- Differential Equations (**MAT-224**)
- Multivariable Calculus (**MAT-225**)

Sciences

- Two-semester sequence of introductory calculus-based physics (**PHY-111 & PHY-112**)
- One course in general chemistry (**CHE-111**)

Computer Science

- One course in computer programming (**CSC-111 or equivalent**). CSC-111 has a prerequisite of CSC-101, but students with dual degree ambitions can consult with the CSC-111 instructor about obtaining a waiver.

Additional

- Columbia requires one course in economics
- Purdue requires public speaking, a writing course, and either micro or macro economics
- Additional major-specific prerequisites vary by engineering discipline

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Partner-Specific Requirements

Columbia University – Combined Plan

- Calculus I & II, Linear Algebra, Differential Equations, Multivariable Calculus
- 2-semester introductory physics
- 1 general chemistry course
- 1 computer programming course
- 1 economics course
- 1 English composition course (or waiver from Wabash composition requirement)
- Additional courses depending on specific engineering major
- Details: Columbia Pre-Combined Plan Curriculum Guide & Combined Plan Website

Washington University in St. Louis – Dual Degree

- Same core as Columbia **minus the required economics course**:
    - Calculus I & II, Linear Algebra, Differential Equations, Multivariable Calculus
    - 2-semester introductory physics
    - 1 general chemistry course
    - 1 computer programming course
    - 1 English composition course (or waiver from Wabash composition requirement)
    - Additional courses by major
- Details: Washington University Dual Degree Program website

Purdue University – Dual Degree Options

- Same core math/science/CS as above
- An English composition course, either ENG-101 or ENG-202
    - Equivalency for ENG-101 exempt students *does not count*
- A public speaking course (RHE-101)
- Either microeconomics (ECO-291) or macroeconomics (ECO-292)
    - ECO-101 *does not count*, but is a prerequisite for both 291 and 292
- Additional discipline-specific courses (see mapping table on Wabash pre-engineering site)
- Programs include:
    - Mechanical Engineering (BSME)
    - Chemical Engineering (BSChE)
    - Multidisciplinary Engineering (BSE)
    - Electrical & Computer Engineering (BSEE/BSCmpE)
- Note: Without summer coursework, **Mechanical Engineering** and some others may require **2.5 years at Purdue.**

Wabash Requirements & Logistics

- **Students must complete:**
    - A Wabash major (often physics or math)
    - A Wabash minor (often physics or math) or second major
    - All distribution requirements

- **Comprehensive Exams:**

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- Written and oral comps may be completed in the **junior year** or later by arrangement.
- The **oral comprehensive exam must be taken on campus**.

Quick Comparison Table

Requirement/Feature	Columbia Combined Plan	Washington University Dual Degree	Purdue Dual Degree
Typical GPA minimum (overall/core)	**3.30**	**3.25**	**3.3–3.5 (by program)**
Math sequence	MAT-111, 112, 223, 224, 225	MAT-111, 112, 223, 224, 225	MAT-111, 112, 223, 224, 225
Physics	PHY-111 & 112	PHY-111 & 112	PHY-111 & 112
Chemistry	CHE-111	CHE-111	CHE-111
Programming	CSC-111	CSC-111	CSC-111
Economics	**Required (1 course)**	Not specified as general requirement	ECO-291 or ECO-292
Public Speaking	Not specified as general requirement	Not specified as general requirement	RHE-101
Composition	ENG-101 or ENG-202 (Wabash waiver accepted)	ENG-101 or ENG-202 (Wabash waiver accepted)	ENG-101 or ENG-202 (Wabash waiver **not** accepted: must take even if waived from Wabash's requirement)
Degree outcome	Wabash A.B. + Columbia B.S.	Wabash A.B. + WashU B.S. + M.S.	Wabash A.B. + Purdue B.S.
Special notes	Formal Combined Plan; major-specific prerequisites	Slightly lower GPA threshold; 3-year WashU option leading to M.S.	Multiple engineering majors; some require 2.5 years at Purdue

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First-Year Advising Checklist

For any first-year student expressing **engineering interest**:

1. **Ask directly**: "Are you considering the dual degree engineering program?"
2. **If yes:**
   - Emphasize the need to **start in the first semester**; a one-semester delay may preclude participation.
   - Enroll in:
     - **Fall**: MAT-111 (or MAT-112), PHY-111, and consider CHE-111 or CSC-111 (with waiver).

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    - **Spring**: MAT-112 (or MAT-223), PHY-112, and continuation of CS/math as feasible.
  - Encourage planning for:
    - **At minimum a physics/math minor**
    - Several semesters of **5 course credits**
  - Have the student **schedule a meeting with pre-engineering advisors** in the first semester.
3. **If placed into MAT-100:**
  - Explain that the student is **almost certainly not** on pace for the dual-degree **3-year Wabash timeline.**
  - Recommend:
    - A **science major + pre-engineering track**
  - Early conversation with **pre-engineering advisors** about post-Wabash engineering options.
4. **If interested in engineering but unsure about dual degree:**
  - Recommend:
    - Calculus (starting level-appropriate, aiming toward the full sequence)
    - At least **one lab science** (physics, or chemistry for chemical engineering, preferably both)
    - Early exposure to **computer science**
  - Keep both dual-degree and post-Wabash engineering options open.

Key Contacts & Resources

- **Pre-Engineering Contacts**
  - **Prof. Qixin Deng** – Goodrich 108, x6457, dengq@wabash.edu
  - **Prof. Nathan Tompkins** – Goodrich 312, x6305, tompkinn@wabash.edu
  - **Prof. Colin McKinney** – Goodrich 109, x6314, mckinnec@wabash.edu

- **Program Information & Course Mappings**
  - Wabash Pre-Engineering/Engineering: http://www.wabash.edu/academics/physics/engineering
  - Columbia Combined Plan & Curriculum Guide**:** https://tinyurl.com/ycy6n73a
  - Washington University Dual Degree Program: https://engineering.washu.edu/academics/dual-degree-program/index.html
  - Purdue engineering program mappings **(see Wabash pre-engineering site)**

Encourage students to connect with **pre-engineering advisors** as early as possible, ideally in the **first semester** of their first year.