

Physics - AS-T (Math Transfer Option)



2022-23

Program map for Physics Associate in Science-Transfer (AS-T), Math Transfer Option

A bachelor's degree in physics is an excellent preparation for advanced study in astronomy and astrophysics, atmospheric science, biophysics, chemical physics, computer science and engineering. Students can complete the first two years of studies toward a bachelor's degree and can also specialize in physics education. Professional careers include research positions with government, universities and private industrial laboratories, observatories and science museums.

See also: (lowercolumbia.edu/programs/stem)

- **Degree Requirements for Science, Technology, Engineering and Math programs** (lowercolumbia.edu/programs/stem)
- **Course descriptions in LCC Catalog** (lowercolumbia.edu/publications/catalog/courses)
- **Distribution lists in LCC Catalog** (lowercolumbia.edu/publications/catalog/distribution-lists)

Please note that many course sequences only begin in fall quarter. Please check with your program advisor for more information.

Please review both the "By Quarter Overview" and "Detailed Class Sequence" tabs below.

By Quarter Overview

First Quarter

- COLL 101: College Success 101 (2 credits)
- PHYS& 221: Engineering Physics I w/ Lab (5 credits)
- MATH& 151: Calculus I (5 credits)
- ENGL& 101: English Composition I (5 credits)

Second Quarter

- PHYS& 222: Engineering Physics II w/ Lab (5 credits)

- MATH& 152: Calculus II (5 credits)
- Choose one:
 - PSYC& 100: General Psychology (5 credits)
 - SOC& 101: Introduction to Sociology (5 credits)

Third Quarter

- PHYS& 223: Engineering Physics III w/ Lab (5 credits)
- MATH& 153: Calculus III (5 credits)
- Choose one:
 - ART& 100: Art Appreciation (5 credits)
 - CMST 250: Intercultural Communication (5 credits)
 - HIST& 126: World Civilization I (5 credits)

Fourth Quarter

- CHEM& 161: General Chemistry w/ Lab I (5 credits)
- MATH& 254: Calculus IV (5 credits)
- Choose one:
 - ANTH& 100: Survey of Anthropology (5 credits)
 - ANTH& 206: Cultural Anthropology (5 credits)
 - HIST& 128: Western Civ III (5 credits)
 - HIST& 215: Women in US History (5 credits)

Apply for Financial Aid at transfer institution

Fifth Quarter

- CHEM& 162: General Chemistry w/ Lab II (5 credits)
- MATH 240: Differential Equations (5 credits)
- MATH 215: Discrete Mathematics (5 credits)

Apply for Graduation (lowercolumbia.edu/graduation)

Sixth Quarter

- CHEM& 163: General Chemistry w/ Lab III
- MATH 220: Linear Algebra (5 credits)
- CS 170: Computer Programming (5 credits)

Detailed Class Sequence

1. College Success

COLL 101: College Success 101 (2 credits)

2. Pre-Major Requirement

PHYS& 221: Engineering Physics I w/ Lab (5 credits)

- *Prerequisites: Completion of or concurrent enrollment in MATH& 151 or instructor permission.*

3. Math Requirement

MATH& 151: Calculus I (5 credits)

- *Prerequisites: MATH& 142 with a grade of C or better.*

4. Communications Requirement

ENGL& 101: English Comp I (5 credits)

- *Prerequisites: College level reading and writing skills or completion of ENGL 099 or TECH 105 with a grade of C or better.*

5. Pre-Major Requirement

PHYS& 222: Engineering Physics II w/ Lab (5 credits)

- *Prerequisites: PHYS& 221, MATH& 152 or instructor permission.*

6. Math Requirement

MATH& 152: Calculus II (5 credits)

- *Prerequisite: MATH& 151 with a grade of C or better.*

7. Social Science Requirement

Choose one of these recommended courses:

- PSYC& 100: General Psychology (5 credits)
- SOC& 101: Introduction to Sociology (5 credits)

8. Pre-Major Requirement

PHYS& 223: Engineering Physics III w/ Lab (5 credits)

- *Prerequisites: PHYS& 222 or instructor permission.*

9. Pre-Major Requirement

MATH& 153: Calculus III (5 credits)

- *Prerequisite: MATH& 152 with a grade of C or better.*

10. Humanities / Diversity Requirement

Choose one of these recommended courses:

- ART& 100: Art Appreciation (5 credits)
- CMST 250: Intercultural Communication (5 credits)
 - *Fulfills [DIVR] requirement at WSU*
- HIST& 126: World Civilization I (5 credits)
 - *Fulfills [DIVR] requirement at WSU*

11. Pre-Major Requirement

CHEM& 161: General Chemistry w/ Lab I (5 credits)

- *Prerequisites: CHEM& 100 or high school chemistry and MATH 098.*

12. Pre-Major Requirement

MATH& 254: Calculus IV (5 credits)

- *Prerequisites: MATH& 153 with a grade of C or better.*

13. Social Science Requirement

Choose one of these recommended courses:

- ANTH& 100: Survey of Anthropology (5 credits)
 - *Fulfills [DIVR] requirement at WSU*
- ANTH& 206: Cultural Anthropology (5 credits)
 - *Fulfills [DIVR] requirement at WSU*
- HIST& 128: Western Civ III (5 credits)
 - *Fulfills [ROOT] requirement at WSU*
- HIST& 215: Women in US History (5 credits)
 - *Fulfills [DIVR] requirement at WSU*

14. Recommended Elective

CHEM& 162: General Chemistry w/ Lab II (5 credits)

- *Prerequisites: CHEM& 161*

15. Pre-Major Requirement

MATH 240: Differential Equations (5 credits)

- *Prerequisite: MATH& 254 with a grade of C or better.*

16. Recommended Elective

MATH 215: Discrete Structures (5 credits)

- *Prerequisite: MATH& 142 with a grade of C or better.*

17. Recommended Elective

CHEM& 163: General Chemistry w/ Lab III (5 credits)

- *Prerequisites: CHEM& 162*
- *It is recommended that sequence courses be completed at one institution.*

18. Pre-Major Requirement

MATH 220: Linear Algebra (5 credits)

- *Prerequisite: MATH& 152 with a grade of C or better.*

19. Recommended Elective

CS 170: Computer Programming (5 credits)

- *Prerequisites: MATH 088 or MATH 097 with a grade of C or better and knowledge of Windows is required; or instructor permission.*



Program Maps for Science, Technology, Engineering and Math (STEM) (lowercolumbia.edu/program-maps/stem)

- [Bioengineering and Chemical Pre-Engineering AS-T \(Chemical Option\) \(lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Chemical-Option \)](http://lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Chemical-Option)
- [Bioengineering and Chemical Pre-Engineering AS-T \(Bioengineering Option\) \(lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Bioengineering-Option \)](http://lowercolumbia.edu/program-maps/stem/AST-Bioengineering-and-Chemical-Pre-Engineering-Bioengineering-Option)
- [Biological Sciences - AS-T \(lowercolumbia.edu/program-maps/stem/AST-Biological-Sciences \)](http://lowercolumbia.edu/program-maps/stem/AST-Biological-Sciences)
- [Biology - DTA/MRP \(lowercolumbia.edu/program-maps/stem/DTA-MRP-Biology \)](http://lowercolumbia.edu/program-maps/stem/DTA-MRP-Biology)
- [Chemistry - AS-T \(lowercolumbia.edu/program-maps/stem/AST-Chemistry \)](http://lowercolumbia.edu/program-maps/stem/AST-Chemistry)
- [Computer Science - AST \(lowercolumbia.edu/program-maps/stem/AST-Computer-Science \)](http://lowercolumbia.edu/program-maps/stem/AST-Computer-Science)
- [Computer Science AS-T \(WSU-V\) \(lowercolumbia.edu/program-maps/stem/AST-Computer-Science-WSU-V \)](http://lowercolumbia.edu/program-maps/stem/AST-Computer-Science-WSU-V)

- **Computer and Electrical Pre-Engineering - AS-T COMP E EE/MRP (2 year) (lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-2-year)**
- **Computer and Electrical Pre-Engineering - AS-T COMP E EE/MRP (3 year) (lowercolumbia.edu/program-maps/stem/AST-Computer-and-Electrical-Pre-Engineering-3-year)**
- **Earth Sciences - AA-DTA (lowercolumbia.edu/program-maps/stem/AADTA-Earth-Sciences)**
- **Earth Sciences - AS-T (lowercolumbia.edu/program-maps/stem/AST-Earth-Sciences)**
- **Environmental Science - AS-T (lowercolumbia.edu/program-maps/stem/AST-Environmental-Science)**
- **Mechanical, Civil, Aeronautical, Industrial, Materials Science Engineering - AS-T (2 year) (lowercolumbia.edu/program-maps/stem/AST-Mechanical-Civil-Aeronautical-Industrial-Materials-Science-Engineering-2-year)**
- **Mechanical, Civil, Aeronautical, Industrial, and Materials Science Engineering AS-T (3 year) (lowercolumbia.edu/program-maps/stem/AST-Mechanical-Civil-Aeronautical-Industrial-Materials-Science-Engineering-3-year)**
- **Physics - AS-T (lowercolumbia.edu/program-maps/stem/AST-Physics)**
- **Physics - AS-T (Math Transfer Option) (lowercolumbia.edu/program-maps/stem/AST-Physics-Math-Transfer-Option)**