

## Associate in Science - Transfer (AS-T)

# Physics

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.

For a roadmap that identifies the preferred sequencing of courses and other specific recommendations from faculty, please see the corresponding program map(s):

- [Physics Associate in Science - Transfer \(AS-T\) \(lowercolumbia.edu/program-maps/stem/AST-Physics-Math-Transfer-Option\)](http://lowercolumbia.edu/program-maps/stem/AST-Physics-Math-Transfer-Option)
- [Physics Associate in Science - Transfer \(AS-T\) \(lowercolumbia.edu/program-maps/stem/AST-Physics\)](http://lowercolumbia.edu/program-maps/stem/AST-Physics)

## Degree Requirements

**Total credits required to earn this degree:** 90 with a cumulative grade point average (GPA) of at least 2.0. A course cannot be credited toward more than one distribution or skill area.

LCC students must meet distribution requirements for associate degrees and specific certificates. See [Diversity and Distribution Lists \(lowercolumbia.edu/publications/catalog/distribution-lists/\)](http://lowercolumbia.edu/publications/catalog/distribution-lists/) for more information.

## General Education Requirements

- **Communications:**

5 credits - ENGL& 101 English Composition I.

- **Quantitative / Symbolic Reasoning Skills:**

10 credits – MATH& 151\* Calculus I **AND** MATH& 152\* Calculus II.

- **Humanities / Social Science:**

15 credits – Selected from at least three disciplines on the *Distribution List*. A minimum of 5 credits in Humanities, and a minimum of 5 credits in Social Science, and an additional 5 credits in either Humanities or Social Science.

- **Diversity:**

5 credits – From the *Diversity Course List*. Courses that meet this requirement may also be used toward other graduation requirements. Diversity courses are listed in

the quarterly schedule and identified by 'DIV' attached to the course title. Example:  
SOC& 101 – Introduction to Sociology:DIV.

- **Pre-Major Requirements:**

35 credits

- **Remaining Credits:**

25 credits - These remaining credits must include program advisor approved credits and should be based on the requirements of the specific discipline at the baccalaureate institution the student selects to attend.

## Program Requirements

### Pre-Major Requirements

Course Code	Course Title	Number of Credits
CHEM& 161*	General Chemistry w/Lab I	5
MATH& 153*	Calculus III	5
MATH& 254*	Calculus IV (was MATH 154)	5
MATH 220	Linear Algebra	5
PHYS& 221*	Engr Physics I w/Lab	5
PHYS& 222*	Engr Physics II w/Lab	5
PHYS& 223*	Engr Physics III w/Lab	5

### Recommended Electives

Course Code	Course Title	Number of Credits
ASTR& 101	Intro to Astronomy	5
CHEM& 162*	General Chemistry w/Lab II	5
CHEM& 163*	General Chemistry w/Lab III	5
CHEM& 261*	Organic Chemistry w/Lab I	5
CHEM& 262*	Organic Chemistry w/Lab II	5
CS 170	Fundamentals of Computer Programming	5

Course Code	Course Title	Number of Credits
MATH 240	Differential Equations	5

## Program Outcomes

Students completing this program should acquire the following skills and abilities:

- Developed the foundational background in physics and mathematics to further pursue a Bachelor's degree in Physics.
- Ability to abstract and then analyze problems or situations in physics through basic concepts and principled.
- Communicate effectively in a scientific setting.
- Developed an appreciation of the nature of physics both as a science consisting of a few fundamental principles of sweeping power, and as a process where one develops physical principles through observation, hypothesis, and experiment.

## Notes

### Revised March 2023 (effective Fall 2023)

\*It is recommended that sequence courses be completed at one institution.

Program planning is based on information available at the time of preparation. It is the student's responsibility to meet with their LCC advisor *and* for checking specific major requirements of baccalaureate institutions in the year prior to transferring. Consult the LCC catalog for LCC graduation requirements.

Most four-year universities require one year of a single foreign language as a graduation requirement.