

# Central Oregon Community College Transfer Guide for Physics and Mathematics Majors

## Physics

Physics is the science that studies the nature of things—the fundamental structure of matter and the interaction of its parts. Physicists seek first to understand the way in which the most elementary systems in nature operate. OSU’s undergraduate program provides a modern approach to physics and a variety of interactive class formats.

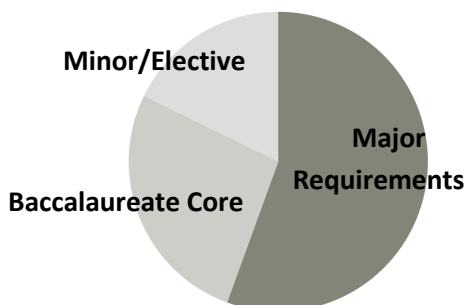
Students who earn undergraduate degrees in physics have a wide variety of career opportunities. Many go on to graduate study in physics or related fields (astronomy, mathematics, computer science, engineering) while others find employment in research and development in industry (electronics, materials science, aerospace, acoustics). Some also pursue an education degree and teach high school.

## Mathematics

Mathematicians study quantities, magnitudes, and forms. They construct mathematical models of both scientific and man-made processes, which help us to predict future events and patterns. Students are trained to think logically and precisely, and exposed to many areas of pure and applied mathematics.

The Mathematics major is essential preparation for graduate study in the mathematical sciences, including statistics and computer science. In addition, many employers and other academic disciplines recognize that a B.S. in mathematics is evidence of high-level training in problem solving. Opportunities for employment exist in teaching at various levels, research & development, industrial & engineering applications, the insurance field, or high school teaching.

## Your Bachelor’s Degree in the OSU College of Science:



- A minimum of 180 credits are required for graduation. 60 must be upper division (300 and 400-level courses).
- A maximum of 124 credits earned at a community college may be applied toward a bachelor’s degree at OSU.
- Only courses with letter prefixes and numbers above 100 can be accepted.
- See OSU Catalog for a list of courses required for your major and option: <http://catalog.oregonstate.edu/DegreeSearcher.aspx?formstate=undermajors>

## Courses for these Majors: (offered at the community college)

Mathematics, General Chemistry, Physics, and some Baccalaureate Core are priority courses to complete before transferring to OSU.

| Requirement                                                                                                                                                                                                                                                                                           | COCC Equivalent                 | OSU Courses for Physics Majors                                                          | OSU Courses for Math Majors                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| <b>Mathematics</b>                                                                                                                                                                                                                                                                                    | MTH 251                         | MTH 251                                                                                 | MTH 251                                                                   |
|                                                                                                                                                                                                                                                                                                       | MTH 252                         | MTH 252                                                                                 | MTH 252                                                                   |
|                                                                                                                                                                                                                                                                                                       | MTH 253                         | MTH 253                                                                                 | MTH 253                                                                   |
|                                                                                                                                                                                                                                                                                                       | MTH 254                         | MTH 254                                                                                 | MTH 254                                                                   |
|                                                                                                                                                                                                                                                                                                       | MTH 255                         | MTH 255                                                                                 | MTH 255                                                                   |
|                                                                                                                                                                                                                                                                                                       | MTH 256                         | MTH 256                                                                                 | MTH 256                                                                   |
|                                                                                                                                                                                                                                                                                                       |                                 |                                                                                         | **Physics majors should complete 251-256 if possible before transferring. |
| <i>Depending on math placement, students may need to take math courses prior to MTH 251 (e.g., MTH 111, 112, or others). Please speak to your COCC advisor. The OSU Math Department enforces prerequisites of C- or better for all Math courses in order to move on to higher level Math courses.</i> |                                 |                                                                                         |                                                                           |
| <b>General Chemistry</b>                                                                                                                                                                                                                                                                              | CH 221, 222, 223 (Physics only) | CH 231/261, 232/262, 233/263                                                            | Not Required                                                              |
|                                                                                                                                                                                                                                                                                                       |                                 | <i>Lecture and lab have separate course numbers at OSU (Lecture/Lab).</i>               |                                                                           |
| <i>Students need a C- or higher in the Chemistry 200-series (OSU or transfer) before moving on to upper division (300-400 level) Chemistry courses.</i>                                                                                                                                               |                                 |                                                                                         |                                                                           |
| <b>Physics</b>                                                                                                                                                                                                                                                                                        | PH 211*, 212, 213               | PH 211/221, 212/222, 213/223                                                            | PH 211* only                                                              |
|                                                                                                                                                                                                                                                                                                       |                                 | <i>Lecture and recitation have separate course numbers at OSU (Lecture/Recitation).</i> |                                                                           |

## General Education Courses: (called the Baccalaureate Core)

- Complete one course in each Perspectives category with no more than two in the same department.
- The Oregon AAOT satisfies all lower division requirements of the Baccalaureate Core (all **but** Synthesis Courses<sup>†</sup>).
- The College of Science allows courses to double count between your major and the Baccalaureate Core.
- See Baccalaureate Core transfer guide\* for specific community college courses meeting these requirements:  
<http://oregonstate.edu/admissions/main/baccalaureate-core-course-equivalencies>

|                                      |                                     |                                    |
|--------------------------------------|-------------------------------------|------------------------------------|
| <b>SKILLS COURSES</b>                | Math                                | Completed as part of major         |
|                                      | Writing I                           | WR 121                             |
|                                      | Writing II                          | Many options, see transfer guide*  |
|                                      | Speech (Writing III)                | Many options, see transfer guide*  |
|                                      | Fitness                             | HHP 295                            |
| <b>PERSPECTIVES COURSES</b>          | Biological Science                  | Many options, see transfer guide*  |
|                                      | Physical Science                    | Completed as part of major         |
|                                      | 2nd Biological or Physical Science  | Completed as part of major         |
|                                      | Cultural Diversity                  | Many options, see transfer guide*  |
|                                      | Literature and the Arts             | Many options, see transfer guide*  |
|                                      | Social Processes and Institutions   | Many options, see transfer guide*  |
| <b>DPD COURSE</b>                    | Western Culture                     | Many options, see transfer guide*  |
|                                      | Difference, Power, & Discrimination | Many options, see transfer guide*  |
| <b>SYNTHESIS COURSES<sup>†</sup></b> | Contemporary Global Issues          | Upper division course, take at OSU |
|                                      | Science, Technology, & Society      | Upper division course, take at OSU |

## Important Notes and Resources:

- For science students, the best time to transfer is fall term, particularly due to the science series courses. Talk with an OSU advisor about your specific timeline.
- Students do not have to complete a transfer degree in order to transfer to OSU. Following the sample two-year plan below can help ease the transfer.
- Preparing to apply to OSU? See admissions info: <http://oregonstate.edu/admissions/transfer.html>
- Want to take classes at both OSU and an Oregon community college? Check out the Degree Partnership Program: <http://oregonstate.edu/partnerships/students>

## Example Two-Year Transfer Plan: (see Math or Physics advising websites below under contacts for specific plans)

|               | Fall Term                                                                                              | Winter Term                                                                                               | Spring Term                                                                                                    |
|---------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Year 1</b> | Math<br>General Chem 2XX (Physics only)<br>PH 211 (Math only needs 211) or Bacc Core<br>WR 121         | Math<br>Gen Chem 2XX (Physics only)<br>PH 212 (Physics only) or Bacc Core<br>Bacc Core                    | Math<br>Gen Chem 2XX (Physics only)<br>PH 213 (Physics only) or Bacc Core<br>Bacc Core                         |
| <b>Year 2</b> | Math (if needed) or Bacc Core<br>PH 211 (if not taken last year)<br>Bacc Core<br>Bacc Core (if needed) | Math (if needed) or Bacc Core<br>PH 212 (if not taken) Physics only<br>Bacc Core<br>Bacc Core (if needed) | Math (if needed) or Bacc Core<br>Physics 213 (if not taken) Physics only<br>Bacc Core<br>Bacc Core (if needed) |

## Advising Contacts:

Academic advisors at your community college and OSU are available to answer your questions and assist you in creating a transfer plan. **See your community college advisor first, and use this Transfer Guide to help you plan.** Also, consider visiting OSU to take a campus tour and meet with an advisor. See <http://oregonstate.edu/visitosu/tour> to schedule your personalized visit.

|                                           |                                                                                                                                                                                                           |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Central Oregon Community College</b>   | <a href="http://www.cocc.edu/cap/advising/">http://www.cocc.edu/cap/advising/</a>                                                                                                                         |
| <b>OSU Physics</b>                        | <a href="http://www.physics.orst.edu/~mcintyre/advising/Transfer.html">www.physics.orst.edu/~mcintyre/advising/Transfer.html</a><br>Dr. Henri Jansen, 541-737-1668, Physics.Chair@science.oregonstate.edu |
| <b>OSU Mathematics</b>                    | <a href="http://www.math.oregonstate.edu/undergrad_advising">www.math.oregonstate.edu/undergrad_advising</a><br>541-737-4686, MathHeadAdvisor@math.oregonstate.edu                                        |
| <b>OSU College of Science main office</b> | 541-737-4811, science@oregonstate.edu                                                                                                                                                                     |