

# PHYSICS, ASSOCIATE IN SCIENCE DEGREE FOR TRANSFER (AS-T)

**Banner Code:** 1\_AST\_PHYS

**Control Number:** 32074

**Financial Aid Eligible**

Students graduating with an Associate in Science in Physics for Transfer Degree are well positioned to complete a Bachelor's Degree in a similar major within the California State University system with 60 units of upper-division coursework. Students who complete the Physics AS-T degree are guaranteed admission to the CSU system, but not to a particular campus or major. Students must maintain a minimum grade point average (GPA) of at least 2.0 in all CSU-transferable coursework. While a minimum 2.0 is required for CSU admission, some majors may require a higher GPA. Please consult a counselor for more information.

It is strongly recommended that all Physics majors take a course in differential equations in addition to the degree requirements, but this cannot be included as a requirement due to unit limitations.

## Program Outcomes

1. Identify and describe major concepts and theoretical principles as applied to physics.
2. Apply appropriate physical laws and mathematical techniques to analyze various physical situations.
3. Perform various scientific experiments and to analyze data to check agreement with theoretical predictions.
4. Students will be eligible and prepared for admission (SB 1440 and Education Code 66746) to California State University system schools.

## Associate Degree for Transfer Requirements

The following is required for all AA-T or AS-T degrees:

1. Minimum of 60 CSU-transferable semester units.
2. Minimum GPA of at least 2.0 in all CSU transferable coursework. While a minimum of 2.0 is required for admission, some majors require a higher GPA. Consult with a counselor for more information.
3. Completion of a minimum of 18-semester units in the major as detailed in the Degree and Certificate section of this catalog. All courses in the major must be completed with a grade of C (or "P") or better.
4. Certified completion of the California State University General Education-Breadth pattern (CSU General Education Breadth – Option 2 (<https://catalog.cccd.edu/orange-coast/general-education-patterns/associate-degree-general-education-option-2/>)) OR the Intersegmental General Education Transfer Curriculum (IGETC – Option 3 (<https://catalog.cccd.edu/orange-coast/general-education-patterns/associate-degree-general-education-option-3/>)).
5. A minimum of 12 units in residence within the Coast Colleges (Orange Coast College, Golden West College and/or Coastline College).

Course	Title	Units
<b>Required Courses</b>		
MATH A180 or MATH A180H	Calculus 1 Calculus 1 Honors	4
MATH A185 or MATH A185H	Calculus 2 Calculus 2 Honors	4
MATH A280 or MATH A280H	Calculus 3 Calculus 3 Honors	4-5
PHYS A185	Calculus Based Physics: Mechanics	4
PHYS A280	Calculus Based Phys:Elec/Mag	4
PHYS A285	Calculus Based Physics: Modern	4
<i>Total Major Units</i>		24-25
<i>CSU General Education Breadth or IGETC for CSU</i>		37-39
<i>Transferable electives as needed to satisfy unit requirement</i>		Varies
<b>Total Degree Units</b>		<b>60</b>

## Program Sequence - CSU

These sequences at Orange Coast College are general course curriculum maps for students to finish all major and general education requirements for two-year completion of degrees, and/or fulfillment of transfer requirements. The course sequence may include course prerequisites and other placement requirements. **Students are advised to meet with an Orange Coast College Counselor to review course selections and sequences to ensure that completion of this program will meet a student's transfer and career goals.**

Course	Title	Units
<b>Year 1</b>		
<b>Semester 1</b>		
MATH A180 or MATH A180H	Calculus 1 or Calculus 1 Honors	4
CSU GE AREA A2 - CHOOSE ONE		3
CSU GE AREA C1 - CHOOSE ONE		3
CSU GE AREA B2 no lab - CHOOSE ONE		3
CSU GE AREA E - CHOOSE ONE		3
<b>Units</b>		<b>16</b>
<b>Semester 2</b>		
MATH A185 or MATH A185H	Calculus 2 or Calculus 2 Honors	4
PHYS A185	Calculus Based Physics: Mechanics	4
HIST A170 or HIST A170H or HIST A175 or HIST A175H	History of the United States to 1876 <sup>1</sup> or History of the United States to 1876 Honors or History of the United States Since 1876 or History of the United States Since 1876 Honors	3
CSU GE AREA A1 - CHOOSE ONE		3
CSU GE AREA A3 - CHOOSE ONE		3-4
<b>Units</b>		<b>17-18</b>
<b>Year 2</b>		
<b>Semester 1</b>		
MATH A280 or MATH A280H	Calculus 3 or Calculus 3 Honors	4

Course	Title	Units
PHYS A280	Calculus Based Phys:Elec/Mag	4
PSCI A180 or PSCI A180H	American Government <sup>1</sup> or American Government Honors	3
CSU GE AREA C1 or C2 - CHOOSE ONE		3
<b>Units</b>		<b>14</b>
<b>Semester 2</b>		
PHYS A285	Calculus Based Physics: Modern	4
CSU GE AREA D - CHOOSE ONE		3
CSU GE AREA F - CHOOSE ONE		3
ELECTIVE (CSU TRANSFERABLE) <sup>2</sup>		3
<b>Units</b>		<b>13</b>
<b>Total Units</b>		<b>60-61</b>

<sup>1</sup> American Ideals Requirement - CSU Graduation Requirement

<sup>2</sup> VARIES TO REACH MINIMUM 60 TRANSFERABLE UNITS

## Program Sequence - IGETC

These sequences at Orange Coast College are general course curriculum maps for students to finish all major and general education requirements for two-year completion of degrees, and/or fulfillment of transfer requirements. The course sequence may include course prerequisites and other placement requirements. **Students are advised to meet with an Orange Coast College Counselor to review course selections and sequences to ensure that completion of this program will meet a student's transfer and career goals.**

Course	Title	Units
<b>Year 1</b>		
<b>Semester 1</b>		
MATH A180 or MATH A180H	Calculus 1 or Calculus 1 Honors	4
IGETC GE AREA 1A - CHOOSE ONE		3
IGETC GE AREA 3A - CHOOSE ONE		3
IGETC GE AREA 3A OR 3B - CHOOSE ONE		3
IGETC GE AREA 5B no lab - CHOOSE ONE		3
<b>Units</b>		<b>16</b>
<b>Semester 2</b>		
MATH A185 or MATH A185H	Calculus 2 or Calculus 2 Honors	4
PHYS A185	Calculus Based Physics: Mechanics	4
IGETC GE AREA 1C - CHOOSE ONE OR ELECTIVE (UC TRANSFERABLE) <sup>1</sup>		3
IGETC GE AREA 1B - CHOOSE ONE		3-4
<b>Units</b>		<b>14-15</b>
<b>Year 2</b>		
<b>Semester 1</b>		
MATH A280 or MATH A280H	Calculus 3 or Calculus 3 Honors	4
PHYS A280	Calculus Based Phys:Elec/Mag	4

Course	Title	Units
HIST A170 or HIST A170H or HIST A175 or HIST A175H	History of the United States to 1876 <sup>2</sup> or History of the United States to 1876 Honors or History of the United States Since 1876 or History of the United States Since 1876 Honors	3
IGETC GE AREA 4 - CHOOSE ONE		3
<b>Units</b>		<b>14</b>
<b>Semester 2</b>		
PHYS A285	Calculus Based Physics: Modern	4
PSCI A180 or PSCI A180H	American Government <sup>3</sup> or American Government Honors	3
IGETC GE AREA 4 - CHOOSE ONE		3
ELECTIVE (UC TRANSFERABLE) <sup>4</sup>		3
Foreign Language or ELECTIVE (UC TRANSFERABLE) <sup>5</sup>		3-5
<b>Units</b>		<b>16-18</b>
<b>Total Units</b>		<b>60-63</b>

<sup>1</sup> IGETC GE Area 1C - CSU Requirement

<sup>2</sup> American Ideals Requirement - IGETC GE AREA 3B and CSU Graduation Requirement OR take another course from IGETC GE AREA 3B

<sup>3</sup> American Ideals Requirement - IGETC GE AREA 4 and CSU Graduation Requirement OR take another course from IGETC GE AREA 4

<sup>4</sup> VARIES TO REACH MINIMUM 60 TRANSFERABLE UNITS

<sup>5</sup> LOTE Requirement for UC only. If met LOTE through HS then take elective units to meet minimum 60 transferable units