

**Associate in Science in Physics for Transfer 2019-2020**

The Associate in Science in Physics for Transfer (AS-T) prepares students to transfer into the CSU system leading to a baccalaureate degree in Physics. Completion of the AS-T degree also provides guaranteed admission with junior status to the CSU system, although not to a particular campus or major. In addition to the AS-T degree requirements, students are encouraged to complete additional courses, that may be articulated as major preparation, prior to transfer. Some typical courses that may be articulated are Mathematics 287, Mathematics 290, Chemistry 219, and Computer Science 120. While these additional courses are not required for this degree, they will better prepare students for upper-division Physics coursework at a CSU. Upon completion of the AS-T, students will become grounded in the fundamental physical laws as well as quantitative and analytical reasoning. Upon completion of the baccalaureate degree in Physics, students may then move in to careers in applied physics, education, and/or as assistant research scientists.

**Learning Outcome(s):**

Students will develop communication via coherent and succinct scientific writing, creative and critical thought for problem solving, and technological competence in the use of computerized sensors, software, and programming for scientific purposes.

| <b>Course</b>                                       | <b>Units</b> |
|---|--------------|
| Physics 217, Engineering Physics I                  | <b>4</b>     |
| Physics 227, Engineering Physics II                 | <b>4</b>     |
| Physics 237, Engineering Physics III                | <b>4</b>     |
| Mathematics 180, Single Variable Calculus I —OR—    |              |
| Mathematics 180H, Honors Single Variable Calculus I | <b>4</b>     |
| Mathematics 185, Single Variable Calculus II        | <b>4</b>     |
| Mathematics 280, Intermediate Calculus              | <b>4</b>     |
| <b>Total 24</b>                                     |              |

## REQUIREMENTS FOR THE ASSOCIATE IN ARTS FOR TRANSFER (A.A.-T) OR ASSOCIATE IN SCIENCE FOR TRANSFER (A.S.-T)



California community colleges are now offering Associate Degrees for Transfer (ADT) to the CSU. These may include Associate in Arts (AA-T) or Associate in Science (AS-T) degrees. These degrees are designed to provide a clear pathway to a CSU major and baccalaureate degree. California community college students who are awarded an AA-T or AS-T degree are guaranteed admission with junior standing somewhere in the CSU system and given priority admission consideration to their local CSU campus or to a program that is deemed similar to their community college major. This priority does not guarantee admission to specific majors or campuses.

Students who have been awarded an AA-T or AS-T are able to complete their remaining requirements for the 120-unit baccalaureate degree within 60 semester or 90 quarter units.

Santa Ana College offers numerous AA-T and AS-T degrees. To find out which CSU campuses accept each degree, please meet with a SAC counselor. You can also find this information at: [www.adegreewithaguarantee.com](http://www.adegreewithaguarantee.com).

**An A.A.-T or A.S.-T degree may not be the best option for students intending to transfer to a particular CSU campus, or to a university or college that is not part of the CSU system.** Current and prospective community college students are encouraged to meet with a counselor to review their options for transfer and to develop an educational plan that best meets their goals and needs.

**\*Please consult a counselor regarding specific course requirements for your transfer institution.**



### Requirements

Student completion requirements for the associate degree for transfer:

- 1.) 60 semester or 90 quarter CSU transferable units. At least 12 of the units must be earned at Santa Ana College.
- 2.) The California State University General Education-Breadth pattern (CSU GE Breadth); OR the Intersegmental General Education Transfer Curriculum (IGETC) pattern. (Students pursuing an ADT in Biology or Chemistry must use CSU General Education for STEM or IGETC for STEM. Please see a counselor for specific requirements for each).
- 3.) A minimum of 18 semester or 27 quarter units in the major or area of emphasis as determined by the community college district (see Instructional Programs portion of the catalog).
- 4.) Obtainment of a minimum grade point average (GPA) of 2.0.
- 5.) Earn a grade of C or better in all courses required for the major or area of emphasis.

### **Santa Ana College currently offers the following Associate in Arts and Associate in Science for Transfer degrees:**

Administration of Justice  
Anthropology  
Art History  
Biology  
Business Administration  
Chemistry  
Communication Studies  
Computer Science  
Early Childhood Education  
Economics  
Elementary Teacher Education  
English  
Film, Television and Electronic Media  
Geography  
Geology  
History  
Journalism  
Kinesiology  
Mathematics  
Music  
Nutrition  
Philosophy  
Physics  
Political Science  
Psychology  
Sociology  
Spanish  
Studio Arts  
Theatre Arts

### Course Substitutions and Reciprocity, Policy and Procedures

Students who have completed courses at another California community college, a regionally accredited institution and/or completed an external exam such as AP, CLEP, or IB may apply the coursework or exam results toward AA-T/AS-T major requirements as follows:

- 1.) A course with a C-ID designation which is completed at another California community college will be substituted for a SAC course that meets an Associate Degree for Transfer (ADT) major requirement designated with the same C-ID number. SAC departmental approval is not required.
- 2.) A course without a C-ID designation which is completed at a regionally accredited institution, other than a California community college, will be reviewed by SAC discipline faculty. Course-to-course substitution will be granted based on discipline faculty determination of comparability to a SAC course with the approved C-ID designation for the given ADT. Course-to-course substitution will be granted in accordance with the statewide C-ID descriptor when the SAC course does not have an approved C-ID designation, but a statewide C-ID descriptor exists. When no such descriptor exists, course substitution will be based on discipline faculty determination of comparability to a SAC course included on the ADT.
- 3.) Students who have completed an external examination such as AP, CLEP, and IB are granted course credit toward ADT major requirements as listed in the SAC catalog (Students should be aware that AP credit may be awarded/counted differently by the transfer institution).
- 4.) A course completed at another California community college that is approved as part of an associate degree for transfer will be applied to the corresponding Santa Ana College Associate Degree for Transfer (ADT) in the corresponding SAC ADT area. Courses completed at other California community colleges must be part of the ADT at the time the student completed the course. Courses completed at other CCC's prior to ADT approval will be "grandfathered".