

## Exhibit 14

### TRANSFER ADVISING GUIDE

**Community College of Philadelphia (CCP) to University of the Sciences in Philadelphia  
A.S. Engineering Science → B.S. Physics (Tracks: General, Material Sciences, Astrophysics)**

**CCP Associate in Science  
Engineering Science**

**USciences Bachelor of Science  
Physics (General, Material Sciences, Astrophysics)**

CCP Courses	Cr.	USciences Courses	Cr.
ENGL101 English Composition I	3	WR101 Writing & Rhetoric I	3
ENGL102 The Research Paper	3	WR102 Writing & Rhetoric II	3
ENGL114 Introduction to Speech Communication <i>(Serves as Humanities elective)</i>	3	CO101 Intro to Communication	3
CIS103 Applied Computer Technology	3	CSX01 Computer Science Elective <i>(serves as Elective)</i>	3
MATH171 Calculus I	4	MA122 Calculus I	4
MATH172 Calculus II	4	MA221 Calculus II	4
MATH271 Calculus III	4	MA222 Calculus III	4
MATH270 Linear Algebra	4	MA316 Linear Algebra	3
MATH272 Differential Equations	4	MA320 Differential Equations	3
CHEM121 College Chemistry I	4	CH111 Principles of Chemistry I CH113 Principles of Chemistry Lab I	3 1
CHEM122 College Chemistry II	4	CH112 Principles of Chemistry II CH114 Principles of Chemistry Lab II	3 1
PHYS140 Mechanics, Heat and Sound	5	PY211 Physics I	4
PHYS241 Electricity, Magnetism and Light	5	PY212 Physics II	4
ENGR102 Engineering Design and Laboratory I	4	PYX01 Physics Elective <i>(serves as Elective)</i>	4
ENGR202 Engineering Design and Laboratory II	4	PYX01 Physics Elective <i>(serves as Elective)</i>	4
ENGR221 Statics	3	PYX01 Physics Elective <i>(serves as Elective)</i>	3
ENGR222 Dynamics	3	PY310 Mechanics	3
CSCI111 Computer Science I with Java	4	CS201 Computer Programming I	3
SOC101 Intro to Sociology	3	SO101 Intro to Sociology <i>(serves as GenEd MD Requirement)</i>	3
<b>CCP credits toward AS</b>	<b>71</b>	<b>Credits Accepted</b>	<b>66</b>
<b>Total CCP Credits</b>	<b>71</b>	<b>Total Credits Accepted</b>	<b>66</b>

A minimum 2.7 cumulative GPA is required for admission.

A minimum grade of “B” in all science and mathematics courses (Prefixes: CHEM, MATH, PHYS). Students who do not meet these minimum grade requirements can still transfer under the terms of this articulation agreement, subject to departmental review and approval.

The courses encompassed in the A.S. degree from CCP must be completed within the three years preceding matriculation at USciences. Students who take more than 3 years to complete the A.S. degree can still transfer under this articulation agreement, subject to departmental review and approval.

PE101/PE102 Physical Education I/II (1 cr), PY100 – Physics Orientation (1 cr) and MA107 Precalculus (3 cr) will be waived for students transferring to USciences after earning the A.S. in Engineering Science. However, the total credits required for graduation (includes transfer credits) will remain unchanged.

Graduation from USciences with a BS degree requires completion of specified courses and a total of 121-136 credit hours, depending upon the degree program. In order to enter USciences with U3 (junior) status and to facilitate the completion of a BS degree in two years of study at USciences, all students are strongly advised to complete more than 60 total credits of course work which is eligible for transfer to USciences. Students interested in transferring to USciences are strongly urged to contact the USciences Admission Office early in their enrollment at CCP for advising.



Suggested checklist for 3<sup>rd</sup> and 4<sup>th</sup> year at USciences for **BS in Physics (General track)** based on current approved curriculum:

*(this checklist is for planning purpose only and it is subject to changes; it does not constitute a contract)*

<b>THIRD YEAR AT USCIENCES</b>		
PY 213	Physics III	3
ST 320	Introduction to Probability	3
	GenEd Social Sciences Requirement	6
PY 301	Modern Physics I	3
PY 370	Math Methods for Phys Sci I	3
PY 380	Electronics	3
PY 406	Advanced Lab	1
PY 410	Electricity and Magnetism	3
PY 420	Optics and Wave Phenomena	3
PY 450	Quantum Mechanics	3
PY 371	Math Methods for the Phys Sci II	3

<b>FOURTH YEAR AT USCIENCES</b>		
PY 495	Undergraduate Research in Physics	2
PY 431	Statistical Mechanics	3
	GenEd MD Requirement	3
	GenEd Humanities Requirement	6
PY 496	Advanced Research in Physics	3
	Physics/Chemistry/Biology Elective	3
PY 305	Physics Seminar	3
	Free Elective	5

Suggested checklist for 3<sup>rd</sup> and 4<sup>th</sup> year at USciences for **BS in Physics (Material Science track)** based on current approved curriculum:

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<b>THIRD YEAR AT USCIENCES</b>		
PY 213	Physics III	3
ST 320	Introduction to Probability	3
	GenEd Social Sciences Requirement	6
PY 301	Modern Physics I	3
PY 370	Math Methods for Phys Sci I	3
PY 380	Electronics	3
PY 406	Advanced Lab	1
PY 410	Electricity and Magnetism	3
PY 420	Optics and Wave Phenomena	3
PY 450	Quantum Mechanics	3
PY 371	Math Methods for the Phys Sci II	3

<b>FOURTH YEAR AT USCIENCES</b>		
PY 480	Introduction to Material Science	3
PY 495	Undergraduate Research in Physics	2
PY 431	Statistical Mechanics	3
	GenEd Humanities Requirement	6
	GenEd MD Requirement	3
PY 470	Solid State Physics	3
PY 496	Advanced Research in Physics	3
PY 440	Intro to Nano Science	3
PY 305	Physics Seminar	3

Suggested checklist for 3<sup>rd</sup> and 4<sup>th</sup> year at USciences for **BS in Physics (Astrophysics track)** based on current approved curriculum:

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<b>THIRD YEAR AT USCIENCES</b>		
PY 213	Physics III	3
ST 320	Introduction to Probability	3
	GenEd Social Sciences Requirement	6
PY 301	Modern Physics I	3
PY 370	Math Methods for Phys Sci I	3
PY 380	Electronics	3
PY 406	Advanced Lab	1
PY 410	Electricity and Magnetism	3
PY 430	Differential Geometry	3
PY 450	Quantum Mechanics	3
PY 371	Math Methods for the Phys Sci II	3

<b>FOURTH YEAR AT USCIENCES</b>		
PY 463	Physics of Stars and Black Holes	3
PY 495	Undergraduate Research in Physics	2
PY 431	Statistical Mechanics	3
	GenEd Humanities Requirement	6
	GenEd MD Requirement	3
PY 465	Intro to Cosmology	3
PY 496	Advanced Research in Physics	3
PY 420	Optics and Wave Phenomena	3
PY 305	Physics Seminar	3

## Progress in Completing USciences' General Education Curriculum

[For the most recent information, see the current USciences Catalog on its website]

### Discipline Requirements (minimum of 41 credits)

Discipline Requirement	Community College Courses // USciences Courses*
Natural Science (ONE semester of lab required) <b>7 credits</b>	CHEM121 CHEM122
Mathematics <b>6 credits</b>	MATH171 & MATH172
Communication (written & oral) <b>9 credits</b>	ENGL101 & ENGL102 & ENGL114
Social Sciences <b>6 credits</b>	<b>Choose Two USciences Courses:</b> PO (Political Science), PS (Psychology), SO (Sociology), AN (Anthropology), SS (Social Sciences), EC (Economics), CO (excluding CO 101 and CO 204)
Humanities <b>6 credits</b>	<b>Choose Two USciences Courses:</b> AC (Arabic), AR (Art), , CI (Chinese), CA (Classics), EN (excluding EN 101 and EN 102), FR (French), GE (German), LA (Latin), HI (History), HU (Humanities), MU (Music), PL (Philosophy), RS (Religious Studies), SP (Spanish), WC (World Cultures)
Multidisciplinary Inquiry <b>6 credits</b> (may be substituted by Social Sciences &/or Humanities courses)	SOC101 <b>Choose One USciences Course: MD</b>
Physical Education <b>1 credit</b>	<b>Waived</b>

### Skills, Values, and Attitudes (one approved course for each)

Skills, Values, and Attitudes	Community College Course	USciences Course [RED = courses taken after transferring to USciences]
Ethics		See list of USciences courses approved for Ethics
Information Literacy		See list of USciences courses approved for Inf Literacy
Oral Communication	SOC101	PY 305
Reasoning & Problem Solving	PHYS121	
Technology	PHYS121	
Written Communication		See list of USciences course approved for Written Comm

Skills requirement is usually fulfilled by taking courses that satisfy discipline requirements that are also approved for one or more GenEd skill.