

## Exhibit 5

### TRANSFER ADVISING GUIDE

**Delaware County Community College (DCCC) to University of the Sciences in Philadelphia  
A.S. Mathematics/Natural Science → B.S. Physics (Physics Gen, Material Sc., Astrophysics Tracks)**

**DCCC Associate in Science  
Mathematics/Natural Science**

**USciences Bachelor of Science  
Physics (Physics Gen, Material Sc., Astrophysics)**

DCCC Courses	Cr.	USciences Courses	Cr.
ENG100 English Composition I	3	WR101 Writing & Rhetoric I	3
ENG112 English Composition II: Writing about Lit.	3	WR102 Writing & Rhetoric II	3
COMM100 Interpersonal Communication	3	CO101 Intro to Communication	3
DPR100 Introduction to Information Technology	3	ISX01 Information Science Elective <i>(serves as Free Elective)</i>	3
MAT152 Precalculus <i>(serves as Quantitative Reasoning Math Elective)</i>	4	MA107 Precalculus	3
MAT160 Calculus I <i>(serves as Mathematics Elective)</i>	4	MA122 Calculus I	4
MAT161 Calculus II <i>(serves as Mathematics/Laboratory Science Elective)</i>	4	MA221 Calculus II	4
MA260 Calculus III <i>(serves as Mathematics/Laboratory Science Elective)</i>	4	MA222 Calculus III	4
MAT200 Linear Algebra <i>(serves as Mathematics/Laboratory Science Elective)</i>	3	MA316 Linear Algebra	3
MA261 Differential Equations <i>(serves as Mathematics/Laboratory Science Elective)</i>	3	MA320 Differential Equations	3
CHE110 General Chemistry I <i>(serves as Scientific Inquiry Elective)</i>	4	CH111 Principle of Chemistry I CH113 Principle of Chemistry Laboratory I	3 1
CHE111 General Chemistry II <i>(serves as Laboratory Science Elective)</i>	4	CH112 Principle of Chemistry II CH114 Principle of Chemistry Laboratory II	3 1
PHY131 Univ Physics I <i>(serves as Open Elective)</i>	4	PY211 Physics I	4
PHY132 Univ Physics II <i>(serves as Open Elective)</i>	4	PY212 Physics II	4
Diversity and Social Justice – Social Sc <b>Choose One:</b> HIS110, 120, 150, 160 POL120 PSY205, 210, 220, 221, 235, 241, 242 SOC110, 120, 180, 210/PSY225, 215	3	<i>(serves as GenEd MD Requirement)</i> HIX01 PO101 PSX01, 200, 347, 301, 204, 200, 201 SO101, 205, 306, AN103, SO330	3
Global Understanding - Humanities <b>Choose One:</b> ART110 ENG241 PHI100	3	<i>(serves as GenEd Humanities Requirement)</i> ARX01 ENX01 PL101	3
Social Science Elective <b>Choose One:</b> ECO210, 220 EDU200	3	<i>(serves as GenEd Social Sciences Requirement)</i> EC101, 201 PL302	3

POL120, 200 PSY200, 202, 204, 205, 210, 220, 221, 225, 235, 241, 242 SOC110, 120, 180, 210/PSY225, 215, 260		PO101 PS309, X01, X01, X01, 200, 347, 301, X01, 204, 200, 201 SO101, 205, 306, AN103, SO330, SSX01	
<b>Choose One:</b> <i>(serves as Open Elective)</i> ARB101, 102 ART100, 110 ASL100, 102 DRA110 ENG241, 250 FRE101, 102 GER101 HUM110, 142, 160 PHI100, 110 SPA101, 102	3	<i>(serves as GenEd Humanities Requirement)</i> AC101, 102 HUX01, ARX01 HUX01 HUX01 ENX01 FR101, 102 GE101 HUX01, HU340, RS310 PL101, ETX01 SP101, 102	3
Social Science Elective <b>Choose One:</b> ECO210, 220 EDU200 POL120, 200 PSY200, 202, 204, 205, 210, 220, 221, 225, 235, 241, 242 SOC110, 120, 180, 210/PSY225, 215, 260	3	<i>(serves as GenEd MD Requirement)</i> EC101, 201 PL302 PO101 PS309, X01, X01, X01, 200, 347, 301, X01, 204, 200, 201 SO101, 205, 306, AN103, SO330, SSX01	3
<b>DCCC credits toward AS</b>	<b>65</b>	<b>Credits Accepted</b>	<b>64</b>
<b>Total DCCC Credits</b>	<b>65</b>	<b>Total Credits Accepted</b>	<b>64</b>

A minimum 2.7 cumulative GPA is required for admission.

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

The courses encompassed in the A.S. degree from DCCC 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 USciences departmental review and approval.

PE101/102-Physical Education I/II (1 cr) and PY100 - Physics Orientation (1 cr) will be waived for students transferring to USciences after earning the A.S. in Mathematics/Natural 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 120-136 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 DCCC for advising.

In addition to the coursework provided in the above table, the following types of courses will be needed to complete the *General Education Discipline Requirements* in USciences' General Education Curriculum:

- 3 credits in Social Sciences

These 3 credits of coursework can be taken at DCCC or after transferring to USciences (currently included in the 3<sup>rd</sup> and 4<sup>th</sup> year at USciences). If the 3 credits are taken at DCCC, they should be selected from the following lists:

<p><b>3 credits in Social Sciences: Select ONE</b></p> <p>ECO210, 220            EDU200            POL120, 200            PSY200, 202, 204, 205, 210, 220, 221, 225, 235, 241, 242            SOC110, 120, 180, 210/PSY225, 215, 260</p>	<p><b>GenEd Discipline Requirements – Social Sciences</b></p> <p>EC101, 201            PL302            PO101            PS309, X01, X01, X01, 200, 347, 301, X01, 204, 200, 201            SO101, 205, 306, AN103, SO330, SSX01</p>
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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)*

THIRD YEAR AT USCIENCES		
PY 213	Physics III	3
ST 320	Introduction to Probability	3
	GenEd Social Sciences Requirement	3
PY 301	Modern Physics I	3
PY 310	Mechanics	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
CS 201*	Computer Programming I	3
FOURTH YEAR AT USCIENCES		
PY 495	Undergraduate Research in Physics	2
PY 431	Statistical Mechanics	3
PY 496	Advanced Research in Physics	3
	Physics Elective	9
	Free Elective	3
PY 305	Physics Seminar	3

\* students transferring Fall 19 and beyond will have to take this additional course

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:

*(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	3
PY 301	Modern Physics I	3
PY 310	Mechanics	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
CS 201*	Computer Programming I	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
PY 470	Solid State Physics	3
PY 496	Advanced Research in Physics	3
PY 440	Intro to Nano Science	3
	Free Elective	3
PY 305	Physics Seminar	3

\* students transferring Fall 19 and beyond will have to take this additional course

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:

*(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	3
PY 301	Modern Physics I	3
PY 310	Mechanics	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
MA 430	Differential Geometry	3
PY 450	Quantum Mechanics	3
PY 371	Math Methods for the Phys Sci II	3
CS 201*	Computer Programming I	3

FOURTH YEAR AT USCIENCES		
PY 463	Physics of Stars and Black Holes	3
PY 495	Undergraduate Research in Physics	2
PY 431	Statistical Mechanics	3
PY 465	Intro to Cosmology	3
PY 496	Advanced Research in Physics	3
	Physics Elective	3
PY 420	Optics and Wave Phenomena	3
PY 305	Physics Seminar	3

\* students transferring Fall 19 and beyond will have to take this additional course

### 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>	CHE110 & CHE111
Mathematics <b>6 credits</b>	MAT152 & MAT160
Communication (written & oral) <b>9 credits</b>	ENG100 & ENG112 & COMM100
Social Sciences <b>6 credits</b>	<p><b>Choose One:</b>            ECO210, 220            EDU200            POL120, 200            PSY200, 202, 204, 205, 210, 220, 221, 225, 235, 241, 242            SOC110, 120, 180, 210/PSY225, 215, 260</p> <p><b>Choose One USciences Course:</b>            PO (Political Science), PS (Psychology), SO (Sociology), AN (Anthropology), SS (Social Sciences),            EC (Economics), CO (excluding CO 101 and CO 204)</p>
Humanities <b>6 credits</b>	<p><b>Choose One:</b>            ARB101, 102            ART100, 110            ASL100, 102            DRA110            ENG241, 250            FRE101, 102            GER101            HUM110, 142, 160            PHI100, 110            SPA101, 102</p> <p><b>Choose One:</b>            ART110            ENG241            PHI100</p>

Multidisciplinary Inquiry (may be substituted by Social Sciences &/or Humanities courses)	<b>6 credits</b>	<b>Choose One:</b> HIS110, 120, 150, 160 POL120 PSY205, 210, 220, 221, 235, 241, 242 SOC110, 120, 180, 210/PSY225, 215  <b>Choose One:</b> ECO210, 220 EDU200 POL120, 200 PSY200, 202, 204, 205, 210, 220, 221, 225, 235, 241, 242 SOC110, 120, 180, 210/PSY225, 215, 260
Physical Education	<b>1 credit</b>	<b>Waived</b>

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

<b>Skills, Values, and Attitudes</b>	<b>Community College Course</b>	<b>USciences Course</b> [RED = courses taken after transferring to USciences]
Ethics		See list of USciences courses approved for Ethics
Information Literacy	BIO111	
Oral Communication		PY305
Reasoning & Problem Solving	BIO110	
Technology	BIO110	
Written Communication		See list of USciences courses approved for Written Com

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