

## Exhibit 16

### TRANSFER ADVISING GUIDE

#### Delaware County Community College (DCCC) to University of the Sciences in Philadelphia A.S. Engineering → B.S. Physics (Physics Gen, Material Sc., Astrophysics Tracks)

#### DCCC Associate in Science Engineering

#### 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
DPR101 Introduction to Computer Science	3	CS201 Computer Programming I	3
MAT160 Calculus I	4	MA122 Calculus I	4
MAT161 Calculus II	4	MA221 Calculus II	4
MAT260 Calculus III	4	MA222 Calculus III	4
MAT261 Differential Equations	3	MA320 Differential Equations	3
MAT200 Linear Algebra (serves as Engineering Curriculum Elective)	3	MA316 Linear Algebra	3
CHE110 General Chemistry I	4	CH111 Principles of Chemistry I CH113 Principles of Chemistry Lab I	3 1
CHE111 General Chemistry II	4	CH112 Principles of Chemistry II CH114 Principles of Chemistry Lab II	3 1
PHY131 Univ Physics I	4	PY211 Physics I	4
PHY132 Univ Physics I	4	PY212 Physics II	4
EGR150 Engineering Topics	1	MIX01 Misher Elective (serves as Free Elective)	1
EGR200 Engineering Statics (serves as Engineering Curriculum Elective)	3	PYX01 Physics Elective (serves as Free Elective)	3
EGR201 Engineering Dynamics (serves as Engineering Curriculum Option)	3	PY310 Mechanics	3
EGR210 Engineering Circuits (serves as Engineering Curriculum Elective)	4	PY380 Electronics	3
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	(serves as GenEd MD Requirement) HIX01 PO101 PSX01, 200, 347, 301, 204, 200, 201 SO101, 205, 306, AN103, SO330	3
Global Understanding- Social Sciences <b>Choose One:</b> HIS110, 120, 150, 160 PSY210, 235, 241, 242 SOC110, 120, 210/PSY225	3	(serves as GenEd MD Requirement) HIX01 PS200, 204, 200, 201 SO101, SO205, AN103	3
Humanities Elective <b>Choose One:</b> ARB101, 102 ART100, 110	3	(serves as GenEd Humanities Requirement) AC101, 102 HUX01, ARX01	3

ASL100, 102 DRA110 ENG241, 250 FRE101, 102 GER101 HUM110, 142, 160 PHI100, 110 SPA101, 102		HUX01 HUX01 ENX01 FR101, 102 GE101 HUX01, HU340, RS310 PL101, ETX01 SP101, 102	
<b>DCCC credits toward AS</b>	<b>66</b>	<b>Credits Accepted</b>	<b>65</b>
<b>Total DCCC Credits</b>	<b>66</b>	<b>Total Credits Accepted</b>	<b>65</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), MA107 – Precalculus (3 cr) and PY100 – Physics Orientation (1 cr) will be waived for students transferring to USciences after earning the A.S. in Engineering. 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:

- 6 credits in Social Sciences
- 3 credits in Humanities

Some or all of these 9 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 9 credits are taken at DCCC, they should be selected from the following lists:

<b>6 credits in Social Sciences: Select TWO</b> ECO210, 220 EDU200 POL120, 200 PSY200, 202, 204, 205, 210, 220, 221, 225, 235, 241, 242 SOC110, 120, 180, 210/PSY225, 215, 260	<b>GenEd Discipline Requirements – Social Sciences</b> EC101, 201 PL302 PO101 PS309, X01, X01, X01, 200, 347, 301, X01, 204, 200, 201 SO101, 205, 306, AN103, SO330, SXX01
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<b>3 credits in Humanities: Select ONE</b>	<b>GenEd Discipline Requirements – Humanities</b>
ARB101, 102	AC101, 102
ART100, 110	HUX01, ARX01
ASL100, 102	HUX01
DRA110	HUX01
ENG241, 250	ENX01
FRE101, 102	FR101, 102
GER101	GE101
HUM110, 142, 160	HUX01, HU340, RS310
PHI100, 110	PL101, ETX01
SPA101, 102	SP101, 102

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	6
PY 301	Modern Physics I	3
PY 370	Math Methods for Phys Sci I	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

FOURTH YEAR AT USCIENCES		
PY 495	Undergraduate Research in Physics	2
PY 431	Statistical Mechanics	3
	GenEd Humanities Requirement	3
PY 496	Advanced Research in Physics	3
	Physics Elective	6
	Free Elective	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 (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)*

THIRD YEAR AT USCIENCES		
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 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

FOURTH YEAR AT USCIENCES		
PY 480	Introduction to Material Science	3
PY 495	Undergraduate Research in Physics	2
PY 431	Statistical Mechanics	3
	GenEd Humanities Requirement	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

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)*

THIRD YEAR AT USCIENCES		
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 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

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
	GenEd Humanities Requirement	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

## 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>	MAT160 & MAT161
Communication (written & oral) <b>9 credits</b>	ENG100 & ENG112 & COMM100
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 One:</b> ARB101, 102 ART100, 110 ASL100, 102 DRA110 ENG241, 250 FRE101, 102 GER101 HUM110, 142, 160 PHI100, 110 SPA101, 102  <b>Choose One USciences Course:</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)	<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> ART110 ENG241 PHI100
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	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.