

Exhibit 20

TRANSFER ADVISING GUIDE

Camden County College (CCC) to University of the Sciences in Philadelphia

A.S. Liberal Arts and Science: Engineering Science Option → B.S. Physics (Physics Gen, Material Sc., Astrophysics)

CCC Associate in Science Engineering Science (EGR.AS)

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

CCC Courses	Cr.	USciences Courses	Cr.
ENG101 English Composition I	3	WR101 Writing & Rhetoric I	3
ENG102 English Composition II	3	WR102 Writing & Rhetoric II	3
MTH140 Calculus I	4	MA122 Calculus I	4
MTH150 Calculus II	4	MA221 Calculus II	4
MTH210 Calculus III	4	MA222 Calculus III	4
MTH145 Linear Algebra	4	MA316 Linear Algebra	3
MTH220 Differential Equations	4	MA320 Differential Equations	3
CHM111 Chemistry I – Science	4	CH111 Principles of Chemistry I CH113 Principles of Chemistry Lab I	3 1
CHM112 Chemistry II – Science	4	CH112 Principles of Chemistry II CH114 Principles of Chemistry Lab II	3 1
PHY201 Physics III	4	PY211 Physics I	4
PHY202 Physics IV	4	PY212 Physics II	4
CAD101 Computer Aided Engineering Graphics	4	CSX01 Computer Science Elective (serves as Free Elective)	4
CSC121 Structured Programming (C++)	4	CS201 Computer Programming I	3
EGR101 Introduction to Engineering	2	PYX01 Physics Elective (serves as Free Elective)	2
EGR201 Statics	3	PYX01 Physics Elective (serves as Free Elective)	3
EGR202 Dynamics	3	PY310 Mechanics	3
EGR211 Engineering Circuit Analysis	3	PY380 Electronics	3
Social Science GenEd Elective Choose One: ANT101/101H ECO101, 102 GEO101 POL101, 101H, 103, 103H PSY101, 101H, 105, 106, 107, 109 SOC101, 101H	3	<i>(serves as GenEd MD Requirement)</i>	3
Humanities GenEd Elective Choose One: ARA101, 102 ART101, 103, 103H, 104, 111, 112,121 CHI101, 102 DAN101 ENG121, 131, 141, 181, 191, 261, 262, 271, 271H,	3	<i>(serves as GenEd Humanities Requirement)</i>	3

272, 272H, 281, 281H, 282 FRE101, 102, 201, 202, 203 GER101, 102, 201 GRK101, 102 HIS101, 101H, 102, 102H, 103, 103H, 111, 112, 121, 122, 131, 132, 142 ITA101, 102, 201, 202, LAT101, 102, 201 MUS111, 112, 113 PHL101, 111, 121, 131, 131H, 141 RUS101, 102, 201 SPA101, 102, 105, 201, 202, 203, 204 THE121			
Diversity-Humanities GenEd Elective Choose One: ART103, 103H, 104,111, 112 ENG181. 191, 271, 271H, 272, 272H FRE201, 202, 203 GER201 HIS101, 101H, 102, 102H, 103, 103H, 131, 132, 142 ITA201, 202, LAT201 MUS113 RUS201 SPA201, 202, 203	3	<i>(serves as GenEd MD Requirement)</i>	3
CCC credits toward AS	70	Credits Accepted	67
Additional Courses Necessary to Enter USciences with Junior (U3) Status:			
Health & Exercise Science Elective Choose One	1	PE101/102 Physical Education I/II	1
Total CCC Credits	71	Total Credits Accepted	68

A minimum 2.7 cumulative GPA is required for admission.

A minimum grade of “B” in all science and mathematics courses (Prefixes: CHM, MTH, PHY, BIO). 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 CCC 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.

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 Science (EGR.AS). 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 CCC 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 CCC or after transferring to USciences (currently included in the 3rd and 4th year at USciences). If the 9 credits are taken at CCC, they should be selected from the following lists:

<p>6 credits in Social Sciences: Select TWO</p> <p>ANT101/101H ECO101, 102 GEO101 POL101, 101H, 103, 103H PSY101, 101H, 105, 106, 107, 109 SOC101, 101H</p>	<p>GenEd Discipline Requirements – Social Sciences</p> <p>AN103 EC101, 102 SSX01 PO101 PS101, X01 SO101</p>
<p>3 credits in Humanities: Select ONE</p> <p>ARA101, 102 ART101, 103, 103H, 104, 111, 112,121 CHI101, 102 DAN101 ENG121, 131, 141, 181, 191, 261, 262, 271, 271H, 272, 272H, 281, 281H, 282 FRE101, 102, 201, 202, 203 GER101, 102, 201 GRK101, 102 HIS101, 101H, 102, 102H, 103, 103H, 111, 112, 121, 122, 131, 132, 142 ITA101, 102, 201, 202, LAT101, 102, 201 MUS111, 112, 113 PHL101, 111, 121, 131, 131H, 141 RUS101, 102, 201 SPA101, 102, 105, 201, 202, 203, 204 THE121</p>	<p>GenEd Discipline Requirements – Humanities</p> <p>AC101, AC102 AR101, ARX01 CI101, CI102 HUX01 EN201, ENX01</p> <p>FR101, 102, 201, 202, HUX01 GE101, 102, 201 HUX01 HIX01, X01, X01, X01, X01, X01, 101, 102, X01, X01, X01, X01, X01 IT101, 102, X01 LA101, 102, LAX01 MUX01 PL101, X01 HUX01 SP101, 102, X01, 201, 202 HU340</p>

Suggested checklist for 3rd and 4th 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
CO 101	Intro to Communication	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	9
PY 305	Physics Seminar	3

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

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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
CO 101	Intro to Communication	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
PY 305	Physics Seminar	3

Suggested checklist for 3rd and 4th 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
CO 101	Intro to Communication	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) 7 credits	CHM111 CHM112
Mathematics 6 credits	MTH140 & MTH150
Communication (written & oral) 9 credits	ENG101 & ENG102 CO101
Social Sciences 6 credits	Choose Two USciences Courses: PO (Political Science), PS (Psychology), SO (Sociology), AN (Anthropology), SS (Social Sciences), EC (Economics), CO (excluding CO 101 and CO 204)
Humanities 6 credits	Choose One: ARA101, 102 ART101, 103, 103H, 104, 111, 112,121 CHI101, 102 DAN101 ENG121, 131, 141, 181, 191, 261, 262, 271, 271H, 272, 272H, 281, 281H, 282 FRE101, 102, 201, 202, 203 GER101, 102, 201 GRK101, 102 HIS101, 101H, 102, 102H, 103, 103H, 111, 112, 121, 122, 131, 132, 142 ITA101, 102, 201, 202, LAT101, 102, 201 MUS111, 112, 113 PHL101, 111, 121, 131, 131H, 141 RUS101, 102, 201 SPA101, 102, 105, 201, 202, 203, 204 THE121 Choose One USciences Course: 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 6 credits (may be substituted by Social Sciences &/or Humanities courses)	Choose One: ANT101/101H ECO101, 102 GEO101 POL101, 101H, 103, 103H

		PSY101, 101H, 105, 106, 107, 109 SOC101, 101H Choose One: ART103, 103H, 104,111, 112 ENG181. 191, 271, 271H, 272, 272H FRE201, 202, 203 GER201 HIS101, 101H, 102, 102H, 103, 103H, 131, 132, 142 ITA201, 202, LAT201 MUS113 RUS201 SPA201, 202, 203
Physical Education	1 credit	Choose One: HPE

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	BIO112	
Oral Communication		PY305
Reasoning & Problem Solving	BIO111	
Technology	BIO111	
Written Communication	PSY101	OR USciences course

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