

Exhibit 18

TRANSFER ADVISING GUIDE

**Bucks County Community College to University of the Sciences in Philadelphia
A.S. Engineering (1028) → B.S. Physics (Tracks: Biophysics, Medical Physics, Pre-Med)**

**Bucks Associate of Science
Engineering (1028)**

**USciences Bachelor of Science
Physics (Biophysics, Medical Physics, Pre-Med)**

Bucks Courses	Cr.	USciences Courses	Cr.
BIOL122 Biological Principles II (replaces ENGR112 Engineering Graphics)	4	BS131 Introductory Biology II	4
CISC115 Computer Science I	4	MSX01 (<i>Free Elective</i>)	4
CHEM121 Chemistry I	4	CH111 Principles of Chemistry I CH113 Principles of Chemistry Lab I	3 1
CHEM122 Chemistry II (<i>serves as Elective</i>)	4	CH112 Principles of Chemistry II CH114 Principles of Chemistry Lab II	3 1
CHEM221 Organic Chemistry I (<i>serves as Elective</i>)	5	CH211 Principles of Organic Chemistry I CH213 Principles of Organic Chemistry Lab I	3 1
COMP110 English Composition I	3	WR101 Writing & Rhetoric I	3
COMP111 English Composition II	3	WR102 Writing & Rhetoric II	3
COMM110 Effective Speaking	3	CO101 Introduction to Communication	3
MATH140 Calculus I	4	MA122 Calculus I	4
MATH141 Calculus II	4	MA221 Calculus II	4
MATH242 Calculus III	4	MA222 Calculus III	4
MATH250 Differential Equations	3	MA320 Differential Equations	3
PHYS121 Physics I	4	PY211 Physics I	4
PHYS122 Physics II	4	PY212 Physics II	4
Arts/Humanities Choose One	3	(<i>serves as GenEd MD Requirement</i>)	3
<u>Social Science: Choose One</u> ECON111 Principles of Economics: Macro PSYC110 Introduction to Psychology SOC110 Introduction to Sociology	3	(<i>serves as GenEd MD Requirement</i>) EC101 Intro to Macroeconomics PS101 Introduction to Psychology SO101 Introduction to Sociology	3
BIOL121 Biological Principles I (<i>serves as Elective</i>)	4	BS132 Introductory Biology I BS134 Introductory Biology I Lab [BS130 Introductory Biology I for students transferring prior to Fall 19]	3 1
Bucks Credits toward AS	63	Credits Accepted	62
Additional Courses Necessary to Enter USciences with Junior (U3) Status:			

Choose One: [KINS 106,110,116,118,120,122,124,129, 130,133,134,135,141,142,145,150,154,155,156, 170,172,175-179,188,189]	2	PE101/102 Physical Education I/II	1
CHEM222 Organic Chemistry II	5	CH212 Principles of Organic Chemistry II CH214 Principles of Organic Chemistry Lab II	3 1
Total Bucks Credits	70	Total Credits Accepted	67

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, BIOL). 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 Bucks 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.

PY100 – Physics Orientation (1 cr) and MA107 - Precalculus (3 cr) will be waived for transfer students transferring to USciences after earning the A.S. in Engineering (1028). 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 Bucks 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
- 6 credits in Humanities

Some or all of these 12 credits of coursework can be taken at Bucks or after transferring to USciences (currently included in the 3rd and 4th year at USciences). If the 12 credits are taken at Bucks, they should be selected from the following lists:

<p>6 credits in Social Sciences: Select TWO</p> <p>CRIJ 100, 110,115,116,120,130,140,160,210,220, 230,250,260,270,275,280,285</p> <p>ECON 111,112,120</p> <p>POLI 130, 111,112,120 ,212</p> <p>PSYC 100,110,160,180,181,185,190,200,205,215, 230,270,280</p> <p>SOCI 120,130,140,150,160</p> <p>SSWK 115,140,215,255</p>	<p>GenEd Discipline Requirements – Social Sciences</p> <p>SO207 Crime, Drugs and Policy EC101, EC201, ECX01 PO101, POX01</p> <p>PS SO, AN SO</p>
<p>6 credits in Humanities: Select TWO</p> <p>AMSL 110,111</p> <p>COMM 111,210,230</p> <p>FREN 110,111,201,202,250,251</p> <p>GRMN 110,111,201,202,250,251</p> <p>HIST 101,111,112,121,126,131,136,139,140,141, 143,144,146,149,151-156,159,160,170,172-178,180, 190,194-199,200-208,210,214,216,217,218,219,239, 245,281,288</p> <p>HUMN 107,108,110-114,120,121,122,125,127, 128,129,166</p> <p>ITAL 110,111,201,202</p> <p>JOUR 155,175,275,276,277,278,280</p> <p>JPNS 101,102</p> <p>LITR 205,206,231,232,234,235,246,254,255,261,262, 264,271,273,275,277,278,279</p> <p>MUSC 100,101,103,105,106,111,112,115,116,124, 129,130,188,201,202,206,211,212,215,216,230</p> <p>PHIL 105,111,115,125,140,145</p> <p>SPAN 110,111,201,202,250,251</p> <p>VAFA 100,110,141,147,148,149,151,157,160,161, 165,167,168,169,171,181,191-196,200,202,203, 210,211,242,246,249,257,260,261,271,282</p> <p>VAFW 100,133,136,137,138,140,145,180,181, 190,280</p> <p>WMST 110</p>	<p>GenEd Discipline Requirements – Humanities</p> <p>HUX01 HUX01 FR, HU GE, HU HI, HU</p> <p>HU</p> <p>IT, HU EN HU EN</p> <p>MU</p> <p>SP AR</p> <p>AR</p> <p>HU</p>

Suggested checklist for 3rd and 4th year at USciences for **BS in Physics (Biophysics 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
PY 301	Modern Physics I	3
PY 310	Mechanics	3
PY 370	Math Methods for the Phys Sci I	3
MA 316	Linear Algebra	3
MA 320	Differential Equations	3
PY 406	Advanced Lab	1
PY 410	Electricity and Magnetism	3
PY 450	Quantum Mechanics	3
PY 371	Math Methods for the Phys Sci II	3
	GenEd Humanities Requirement	6

FOURTH YEAR AT USCIENCES		
PY 495	Undergraduate Research in Physics	2
PY 380	Electronics	3
PY 420	Optics and Wave Phenomena	3
CH 341	Molecular Structure Biochemistry	3
PY 431	Statistical Mechanics	3
CS 201*	Computer Programming I	3
	Free Elective	3
PY 496	Advanced Research in Physics	3
PY 340	Biophysics I	3
PY 305	Physics Seminar	1
	GenEd Social Sciences Requirement	6

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

Suggested checklist for 3rd and 4th year at USciences for **BS in Physics (Medical Physics 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
PY 301	Modern Physics I	3
PY 310	Mechanics	3
PY 380	Electronics	3
MA 320	Differential Equations	3
CH 341	Molecular Structure Biochemistry	3
PY 406	Advanced Lab	1
PY 410	Electricity and Magnetism	3
PY 302	Modern Physics II	3
	GenEd Humanities Requirement	6

FOURTH YEAR AT USCIENCES		
PY 495	Undergraduate Research in Physics	2
PY 420	Optics and Wave Phenomena	3
PY 412	Physics of Radiation Therapy	3
PY 411	Advanced Electromagnetism	3
	GenEd Social Sciences Requirement	6
PY 496	Advanced Research in Physics	3
PY 340	Biophysics I	3
	Physics/Biology/Biochem elective	3
	Free Elective	6
PY 305	Physics Seminar	1

Suggested checklist for 3rd and 4th year at USciences for **BS in Physics (Pre-Med 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
	Statistics Elective	3
PY 301	Modern Physics I	3
PY 310	Mechanics	3
PY 380	Electronics	3
MA 320	Differential Equations	3
CH 341	Molecular Structure Biochemistry	3
PY 406	Advanced Lab	1
PY 410	Electricity and Magnetism	3
PY 302	Modern Physics II	3
BS 466	Genetics	4
	GenEd Humanities Requirement	6

FOURTH YEAR AT USCIENCES		
PY 495	Undergraduate Research in Physics	2
PY 420	Optics and Wave Phenomena	3
PY 412	Physics of Radiation Therapy	3
	Free Elective	6
	GenEd Social Sciences Requirement	6
PY 496	Advanced Research in Physics	3
PY 340	Biophysics I	3
	Biology/Biochem elective	3
PY 305	Physics Seminar	1

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	CHEM121 CHEM122
Mathematics 6 credits	MATH125 & MATH140
Communication (written & oral) 9 credits	COMP110 & COMP111 & COMM110
Social Sciences 6 credits	Choose Two USciences Course: 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 Two USciences Courses: 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 substitute by Social Sciences &/or Humanities courses)	Choose One: ECON111 Principles of Economics: Macro PSYC110 Introduction to Psychology SOC110 Introduction to Sociology Choose One: Arts/Humanities
Physical Education 1 credit	Choose One: [KINS 106,110,116,118,120,122,124,129, 130,133,134,135, 141,142,145,150,154,155,156, 170,172,175-179,188,189]

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	SOCI110	OR PY 305
Reasoning & Problem Solving	PHYS121	
Technology	PHYS121	
Written Communication	PSYCH110	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.