

Exhibit 19

TRANSFER ADVISING GUIDE

**Bucks County Community College to University of the Sciences in Philadelphia
A.S. Engineering (1028) → B.S. Chemistry or B.S. Biochemistry or B.S. Pharmaceutical Chemistry**

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

**USciences Bachelor of Science
Chemistry or Biochemistry or
Pharmaceutical Chemistry**

Bucks Courses	Cr.	USciences Courses	Cr.
CHEM222 Organic Chemistry II (replaces ENGR112 Engineering Graphics)	5	CH212 Principles of Organic Chemistry II CH214 Principles of Organic Chemistry Lab II	3 1
CISC115 Computer Science I	4	CS201 Computer Programming I <i>(serves as Free Elective)</i>	3
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 Intro to Communication <i>(serves as GenEd Social Sciences Requirement)</i>	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 <i>(serves as Elective)</i>	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</u> : Choose One 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	64	Credits Accepted	61

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
Total Bucks Credits	66	Total Credits Accepted	62

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.

CH120-Orientation for the Chemical Sciences (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 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 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:

- 3 credits in Social Sciences
- 6 credits in Humanities

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

<p>3 credits in Social Sciences: Select ONE</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>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>

Suggested checklist for 3rd and 4th year at USciences for **BS in Chemistry** 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		
CH 331	Basic Inorganic Chemistry	3
CH 366	Principles of Analytical Chemistry	3
CH 367	Analyt and Phys Methods Lab I	1
CH 321	Physical Chemistry I	4
CH 300	Discussions in Chemistry	1
CO 204	Public Speaking	3
	GenEd Social Sciences Requirement	3
CH 322	Physical Chemistry II	4
CH 376	Instrumental Analysis	3
CH 368	Analyt and Phys Methods Lab II	1
CH 404	Literature of Chemistry	1

FOURTH YEAR AT USCIENCES		
	GenEd Humanities Requirement	6
CH 401	Seminar in Chemistry I	1
CH 423	Physical Chemistry Lab I	2
CH 431	Inorganic Chemistry	3
CH 341	Molecular Structure Biochemistry	3
	Chemistry Elective	3
CH 402	Seminar in Chemistry II	1
CH 425	Inorganic and Material Synth Lab	2
	Elective	10

Suggested checklist for 3rd and 4th year at USciences for **BS in Pharmaceutical Chemistry** based on current approved curriculum:

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THIRD YEAR AT USCIENCES		
CH 331	Basic Inorganic Chemistry	3
	GenEd Social Sciences Requirement	3
CH 300	Discussions in Chemistry	1
CH 321	Physical Chemistry I	4
CO 204	Public Speaking	3
CH 341	Molecular Structure Biochemistry	3
CH 366	Principles of Analytical Chemistry	3
CH 367	Analyt and Phys Methods Lab I	1
CH 322	Physical Chemistry II	4
CH 343	Intermediary Metabolic Biochemistry	3
CH 376	Instrumental Analysis	3
CH 368	Analyt and Phys Methods Lab II	1
CH 404	Literature of Chemistry	1

FOURTH YEAR AT USCIENCES		
	GenEd Humanities Requirement	6
	Pharmaceutical Chemistry Progr Elect	3
CH 411	Medical Chemistry	3
CH 401	Seminar in Chemistry I	1
CH 423	Physical Chemistry Lab I	2
CH 402	Seminar in Chemistry II	1
	Pharmaceutical Chemistry Progr Elect	3
CH 464	Pharmaceutical Analytical Chemistry	3
CH 465	Pharmaceutical Analytical Chem Lab	1
	Elective	2

Suggested checklist for 3rd and 4th year at USciences for **BS in Biochemistry** based on current approved curriculum:

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THIRD YEAR AT USCIENCES		
CH 331	Basic Inorganic Chemistry	3
CH 320	Essentials of Physical Chemistry	4
CH 366	Principles of Analytical Chemistry	3
CH 367	Analyt and Phys Methods Lab I	1
CH 341	Molecular Structure Biochemistry	3
CO 204	Public Speaking	3
	GenEd Social Sciences Requirement	3
CH 444	Biochemistry Laboratory I	1
CH 300	Discussions in Chemistry	1
CH 404	Literature of Chemistry	1
BS 466	Genetics	4
CH 343	Intermediary Metabolic Chemistry	3
CH 445	Biochemistry Laboratory II	1

FOURTH YEAR AT USCIENCES		
CH 401	Seminar in Chemistry I	1
CH 423	Physical Chemistry Lab I	2
	Biochemistry Elective	3
BS 461	Cell Biology	4
	GenEd Humanities Requirement	6
CH 402	Seminar in Chemistry II	1
CH 342	Nucleic Acid Biochemistry	3
	Biochemistry Elective	3
	Elective	4

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	COMM110 Choose One 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 substituted 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		CH 300
Information Literacy		CH 404
Oral Communication		CH 401
Reasoning & Problem Solving	BIOL121	
Technology	BIOL121	
Written Communication		CH 423