

## **Connecticut Health and Life Sciences Career Initiative Eastern Connecticut State University**

### **Summary of Pathway Studies and Articulation Process Work**

At the outset, we attempted to bring together key players from Eastern's programs with the Curriculum Innovators from other schools to share information on our programs and potential opportunities, sharing information on traditional programs, programs for adults, dual enrollment and the like. In addition, we met with as many faculty or administrators as permitted to identify their programs and needs. Our level of involvement with particular programs has varied, based on their availability and interest.

In total, we have evaluated program equivalencies for 43 programs across all four state Universities. We have drafted over 80 sample plans of study. We have also drafted 25 articulation agreements covering 36 programs. All but one agreement has been signed or is in the signing stage.

The process we undertook is outlined below.

#### **Step One: Course Equivalency Review across CSCU**

The first step was to make sure we had current information on each new or revised A.S. degree program. This has been a moving target as most programs have undergone several phases of change. We then evaluated course equivalencies across the four state universities. (See Attachment A)

#### **Step Two: Identification of Equivalent Courses at Community Colleges and Eastern**

The next step was to identify new or revised courses that might have an equivalent course at Eastern, and to collect the relevant syllabi. Eastern faculty reviewed over 55 community college courses to determine transfer equivalency. A course is deemed equivalent when successful completion at the community college meets the requirements for a course at Eastern and prepares the student sufficiently to take the next course in the sequence. Most courses selected for review were created or revised under the grant. However, we also revisited some additional courses in light of Eastern's new major in Health Sciences, which opened up new courses and pathways at Eastern for community college students.

Approximately 42 courses were deemed to have direct equivalents or count as elective departmental credits through the review process. We also identified four additional equivalencies based on new course offerings at Eastern for the Health Sciences major.

#### **Step Three: Updating Course Equivalency Review and Preparing Plans of Study**

With the additional 42 courses identified as equivalent, we were able to update the program-level course equivalency plan and create sample plans of study (see Attachments B & C). For each new or revised A.S. degree in the grant, we identified the most likely major at Eastern created a sample plan of study, showing what courses for that major would have been completed and what courses would be taken at Eastern. We did a similar plan for Central, selecting the major at Central that was the best fit and identifying what courses would be needed to meet all the requirements to transfer to Central.

At the same time, we began to review some trends across the programs. For example, we discovered that all the A.S. degrees met the minimum writing requirements for Eastern, but few of the programs met the

minimum math required. Many of the professional programs (e.g. Occupational Therapy Assistant) do not meet our Tier 1 Liberal Arts Requirements (general education), although most of the more traditional programs (e.g. Biology or Environmental Science) do. These are one important indicator of how well a program will transfer into Eastern, as they are courses that students usually complete within their first 30-60 credits, and are often pre-requisites for upper level courses that they need.

#### **Step Four: Identifying Pathways for Students**

Our next step was to meet with Program Coordinators to identify potential opportunities for articulation agreements (see Attachment C). We emphasized two criteria:

1. The feasibility of a student with an A.S. degree completing a B.A. or B.S. in two more years of study.
2. Size of program and characteristics of the student.

Often times, our discussions at this point allowed us to help select from course choices or electives to make the student's pathway most efficient. In some instances, we were able to provide input as the program was being created or revised to help develop a program that was appropriate for transfer.

As part of this effort, we met with Marcia Jehnings at Manchester Community College and discussed the needs of adult students in professional programs. Many of the students are completing highly technical or professional A.S. degrees. Some may need or want to complete a bachelor's degree to move into supervisory or educational roles in their fields. Eastern created a new pathway to accommodate this need, providing the students with a Bachelor of General Studies in Health Care Administration. This was reviewed and accepted for 12 Allied Health programs and 2 Electronic Health Records programs. This is one of Eastern's more flexible degrees, and includes several of Eastern's courses that are taught at MCC, Eastern's Groton facility, or online, offering even more opportunity for adult, working students.

#### **Step Five: Advising Guides**

In order to get the word out, we have created Advising Guides for each of these programs (see Attachment D). The Advising Guides provide brief, sample language for the academic catalog and/or website to notify and prepare the student. They also provide a one or two page document summarizing the key information that an academic advisor or Program Coordinator would need to help guide the student.

#### **Disseminating the Information to Faculty, Administration, and Students**

- a. All of the course equivalency studies and sample plans of study between the community colleges and Eastern have been posted on our grant website ([www1.easternct.edu/healthsciences](http://www1.easternct.edu/healthsciences)).
- b. We have met with program coordinators or advisors to review this information. We are encouraging them to get the word out, as most of the information sharing needs to come from the community colleges. Once a transfer student talks to Eastern, they are typically almost done with their degree.
- c. We will do one final outreach effort in Fall, 2016 to encourage the use of the advising guides.
- d. We are creating new marketing material for the new BGS concentration.
- e. We will continue to look into new opportunities to jointly market the programs.

**ATTACHMENT A**

**ALL PROGRAMS REVIEWED**

Meets Eastern Math Req.?	Liberal Arts Credits	College	Program	Degree
No	T1 Waived	CCC	Biotechnology	AS
No	T1 Waived	CCC	Gerontology (Social Services)	AS
No	T1 Waived	CCC	Health Information Management	AS
No	T1 Waived	CCC	Medical Assisting	AS
No	T1 Waived	CCC	Nursing	AS
No	25	CCC	Paramedic Studies	AS
No	25	CCC	Paramedic Studies: Emerg. Mng. Resp. Option	AS
No	25	CCC	Paramedic Studies: EMS Instructor Option	AS
No	T1 Waived	GWCC	Data Security Specialist	AS
No	T1 Waived	GWCC	Diagnostic Medical Sonography	AS
No	21	GWCC	Electronic Health Records and Coding	AS
No	T1 Waived	GWCC	Environmental Science and Toxicology	AS
No	T1 Waived	GWCC	Exercise Science and Wellness	AS
No	19	GWCC	Medical Administrative Assistant	AS
No	T1 Waived	GWCC	Mobile Application Development	AS
Yes	T1 Waived	GWCC	Natural Sciences and Mathematics	AS
No	T1 Waived	GWCC	Nursing	AS
No	22	GWCC	Nutrition and Dietetics	AS
No	T1 Waived	GWCC	Pre-Dental Hygiene	AS
No	25	GWCC	Radiation Therapy	AS
No	21	GWCC	Radiography	AS
No	T1 Waived	MCC	Administrative Assistant, Medical Option	AS
Yes	T1 Waived	MCC	Environmental Science	AS
Yes (elective)	T1 Waived	MCC	Health and Exercise Science	AS
No	23	MCC	Occupational Therapy Assistant	AS
Yes	23	MCC	Radiologic Science: Radiation Therapy Track	AS
No	16	MCC	Radiologic Science: Radiography Track	AS
No	T1 Waived	MCC	Respiratory Care	AS
Yes (elective)	T1 Waived	MCC	Surgical Technology	AS
No	T1 Waived	MCC	Therapeutic Recreation	AS
No	T1 Waived	MxCC	Biotechnology	AS
Yes	T1 Waived	MxCC	Computer Engineering and Technology	AS
Yes	T1 Waived	MxCC	Engineering Science	AS
No	T1 Waived	MxCC	Environmental Science	AS
No	T1 Waived	MxCC	Health Information Management	AS
(reviewing program)		MxCC	Public Health Advising Pathway	AS
No	18	MxCC	Radiologic Technology (Radiography)	AS
No	24	MxCC	Veterinary Technology	AS
Yes	T1 Waived	NCC	Environmental Science Career Advising Pathway	AS
No	T1 Waived	NCC	Nursing	AS
No	15	NCC	Physical Therapist Assistant	AS
Yes	T1 Waived	NCC	Public Health Advisory Track	AS
No	T1 Waived	NCC	Veterinary Technology	AS

**ATTACHMENT B – COURSE EQUIVALENCIES ACROSS THE FOUR STATE UNIVERSITIES**

CAPITAL			Eastern			Central				
Biotechnology			Course	Title	Credits	Requirement	Course	Title	Credits	Requirement
ENG* 101	Composition	3	ENG 100	College Writing	3	T1W	Articulation Agreement			
ENG* 102	Composition & Literature	3	ENG 125	Introduction to Literature	3	T1LT				
MAT* 137	Intermediate Algebra	3	MAT 099	Algebra Essentials	3					
or MAT* 172	College Algebra	3	MAT 099	Algebra Essentials	3					
MAT* 167	Principles of Statistics	3	MAT 216	Statistical Data Analysis	3	T2IT				
BIO* 121	General Biology I	4	BIO 120	Organismal Biology w/ Lab	4					
BIO* 130	Basic Techniques in Biotechnology	4								
BIO* 202	Seminar in Biotechnology	2								
BIO* 230	Advanced Techniques in Biotechnology	4								
BIO* 265	Synthetic Biology	4								
BIO* 296	Internship in Biotechnology	4								
CHE* 121	General Chemistry I	4	CHE 210/212	General Chemistry I w/ Lab	4					
CHE* 122	General Chemistry II	4	CHE 211/213	General Chemistry II w/ Lab	4					
CHE* 213	Principles of Organic Chemistry	4	CHE 216	Organic Chemistry I w/ Lab	4					
PHY* 121	General Physics I	4	PHY 204	General Physics I w/ Lab	4					
	Humanities Elective	3		LAC course recommended (see transfer equivalents)**		T2CP				
	Social Sciences Elective (1 of 2)	3		LAC course recommended (see transfer equivalents)**		T2IS				
	Social Sciences Elective (2 of 2)	3								
	Fine Arts Elective	3								

Total 62

Waives LAC Tier I requirements

Does not meet Math requirement

<b>CAPITAL Biotechnology</b>			<b>Southern</b>			<b>Western</b>		
			Course	Title	Credits	Course	Title	Credits
ENG* 101	Composition	3	ENG 111	Composition I	3	WRT 101	Composition I: Habit of Writing	3
ENG* 102	Composition & Literature	3	ENG 112	Writing Arguments	3	WRT 991W	Gen Educ Writing Intensive	3
MAT* 137	Intermediate Algebra	3	MAT 100	Intermediate Algebra	3	MAT 100	Intermediate Mathematics	3
or MAT* 172	College Algebra	3	MAT 120	College Algebra	3	MAT 991	Gen Educ Mathematics Elective	3
MAT* 167	Principles of Statistics	3	MAT 107	Elementary Statistics	3	MAT 120	Elementary Statistics	3
BIO* 121	General Biology I	4	BIO 104/ BIO 0100	General Biology & BIO Transfer Elective	4	BIO 103	General Biology I	4
BIO* 130	Basic Techniques in Biotechnology	4						
BIO* 202	Seminar in Biotechnology	2						
BIO* 230	Advanced Techniques in Biotechnology	4						
BIO* 265	Synthetic Biology	4						
BIO* 296	Internship in Biotechnology	4						
CHE* 121	General Chemistry I	4	CHE 120	General Chemistry I	4	CHE 120	Survey of Chemistry	4
CHE* 122	General Chemistry II	4	CHE 121	General Chemistry II	4	CHE 991	Gen Educ Science Elective	4
CHE* 213	Principles of Organic Chemistry	4	CHE 260	Organic Chemistry I	4	CHE 210	Organic Chemistry I	4
PHY* 121	General Physics I	4	PHY 200	General Physics I	4	PHY 120	General Physics I	4
	Humanities Elective	3						
	Social Sciences Elective (1 of 2)	3						
	Social Sciences Elective (2 of 2)	3						
	Fine Arts Elective	3						

Total 62

ATTACHMENT C – SAMPLE PLAN OF STUDY

CCC Biotechnology transfer to Bachelor of Science in Biochemistry at Eastern

Degree Requirements- Sample Plan of Study

Course	Title	Credits	Eastern	CCC	Notes:
<b>Tier I Methods and Concepts</b>					
FYI	First Year Liberal Arts Colloquium	3		X	Waived with transfer of 15+ credits
T1W	College Writing	3		X	ENG* 100: College Writing
T1A	Arts and Humanities: Arts in Context	3		X	Waived with 27 credit rule
T1LT	Literature and Thought	3		X	Waived with 27 credit rule
T1HW	Health and Wellness	3		X	Waived with 27 credit rule
T1HW	Historical Perspective	3		X	Waived with 27 credit rule
T1M	Mathematics	3	X		MAT* 155/155P Precalculus
T1NS	Natural Sciences	3-4		X	Waived with 27 credit rule
T1SS	Social Sciences	3		X	Waived with 27 credit rule
<b>Tier II Synthesis and Application</b>					
<i>Two Tier II must be taken at Eastern</i>					
T2IT	Applied Information Technology	3		X	MAT* 167: Principles of Statistics
T2CE	Arts and Humanities: Creative Expression	3		X	Fine Arts Elective
T2CP	Cultural Perspectives	3	X		
T2IS	Individuals and Societies	3		X	Social Science Elective
T2NS	Natural Sciences	3	X		BIO 220: Cell Structure & Function w/ Lab
<b>Tier III Independent Inquiry</b>					
T3	CHE 450: Biochemistry Profession	3	X		

Biochemistry Requirements

CHE					
210/212	General Chemistry I w/Lab	4		X	CHE* 121: General Chemistry I
CHE					
211/213	General Chemistry II w/ Lab	4		X	CHE* 122: General Chemistry II
CHE 216	Organic Chemistry I w/ Lab	4		X	CHE* 213: Principles of Organic Chemistry
CHE 217	Organic Chemistry II w/ Lab	4	X		
BIO 120	Organismal Bio w/Lab	4		X	BIO* 121: General Biology I
BIO 220	Cell Structure & Function w/Lab	4	X		T2NS
BIO 230	Genetics w/Lab	4	X		
PHY 204	Physics I w/ Lab	4		X	PHY* 121: General Physics I
PHY 205	Physics II w/ Lab	4	X		
MAT 244	Calculus II	4	X		

Mathematics and Biology Prerequisites

MAT					
155/155P	Precalculus	4 or 5	X		T1M
MAT 243	Calculus I	4	X		
BIO 130	Ecology w/Lab	4	X		

Required Advanced Scientific Courses

CHE					
316/317	Biochemistry I w/ Lab	4	X		
CHE					
318/319	Biochemistry II w/ Lab	4	X		

CHE 323	Physical Biochemistry	3	X	
CHE 410	Physical Biochemistry Technique	3	X	
CHE 425	Chemical Instrumentation w/ Lab	4	X	
CHE 450	Biochemistry Profession	3	X	T3

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**Optional Elective Courses**

CHE 320	Quant Chem Analyt w/ Lab	4	
CHE 370	Organic Qualitat Analy w/Lab	4	
BIO 330	Cell Biology w/ Lab	4	
BIO 334	General Microbiology w/ Lab	4	
BIO 422	Res Meth in Molec Bio w/Lab	3-4	
BIO 428	Virology w/ Lab	4	
BIO 436	Molecular Genetics w/ Lab	4	
BIO 450	Biotechnology w/ Lab	4	

**Notes:**

1. Students must take at least two Tier II courses at Eastern and their Tier III course at Eastern.
2. Courses in **bold** are recommended to meet Eastern's requirements.
3. Blue-shaded courses fulfill both an LAC requirement and a requirement for the major.

**ATTACHMENT D**

<b>ARTICULATION AGREEMENTS</b>						
<b>Signed Agreements</b>						
<b>Community College</b>	<b>CC Program</b>	<b>Eastern Program</b>	<b># of docs</b>	<b>Total</b>	<b># programs</b>	<b>Total</b>
<b>Capital</b>	Biotechnology	Biochemistry	1	<b>3</b>	1	<b>5</b>
	Health Information Management	BGS in Health Care Administration	1		1	
	Liberal Arts and Sciences	Health Sciences	1		3	
<b>Gateway</b>	Natural Sciences and Mathematics	Health Sciences (3 tracks)	1	<b>2</b>	3	<b>4</b>
	Natural Sciences and Mathematics	Biology	1		1	
<b>Manchester</b>	Environmental Science	Environmental Earth Science (3 Tracks)	3	<b>7</b>	3	<b>12</b>
	Health Career Programs (6): • Occupational Therapy Asst • Radiation Therapy • Radiography • Respiratory Care • Surgical Technology • Therapeutic Recreation	BGS in Health Care Administration	1		6	
	Liberal Arts & Sciences	Health Sciences (3 tracks)	3		3	
<b>Middlesex</b>	Biotechnology	Biology	1	<b>7</b>	1	<b>6</b>
	Environmental Science	Environmental Earth Science (3 Tracks)	3		2	
	Environmental Science	Biology	1		1	
	Health Information Management	BGS in Health Care Administration	1		1	
	Radiologic Technology (Radiography)	BGS in Health Care Administration	1		1	
<b>Norwalk</b>	Environmental Science Advisory Track	Environmental Earth Science (3 Tracks)	3	<b>5</b>	3	<b>5</b>
	Physical Therapy Assistant	BGS in Health Care Administration	1		1	
	Public Health Advisory Track	Health Sciences - Public Health Concentration	1		1	
				<b>24</b>		
				signed documents		
				programs covered	<b>32</b>	



## ATTACHMENT E - Sample Advising Guide

### Advising Supplement for Articulation Agreement

#### Capital Community College – A.S., Biotechnology to Eastern Connecticut State University – B.S., Biochemistry

*This advising guide accompanies the articulation agreement for ease of use when working with students who may be interested in continuing their studies at Eastern. It lists any specific courses or recommendations for courses at the community college that are included in the agreement. Students can be advised to complete the normal coursework for their program with attention to the following items/options:*

For transfer students to fulfill major pre-requisites and complete the B.S. in a timely fashion, Eastern recommends that they take **BIO\*122 General Biology II (4 credits)** in addition to the normal coursework required for the A.S. in Biotechnology at Capital.

Students in the Biotechnology program should also select:

- A Fine Arts Elective that fulfills Eastern's LAC Tier 2 Arts and Humanities: Creative Expression (T2CE) requirement
- A Social Science Elective that fulfills Eastern's LAC Tier 2 Cultural Perspectives (T2CP) **or** LAC Tier 2 Individuals and Societies (T2IS) requirement

See Addendum A (below) for a list of courses at Capital that fulfill these requirements.

A current list of courses that fulfill these requirements can also be found by searching Eastern's Transfer Credit Equivalency database and selecting the appropriate option in the "Select LAC Requirement" field.

- Direct link to database:  
[https://eweb.easternct.edu/wfbprod/bysktreq.p\\_ask\\_parms\\_to?displayMode=N](https://eweb.easternct.edu/wfbprod/bysktreq.p_ask_parms_to?displayMode=N)
- Or connect to the database by clicking on "Course Equivalency" on the undergraduate transfer student admissions page: <http://www1.easternct.edu/admissions/transfer/>

#### Text for catalog and/or website:

Students interested in earning a B.S. in Biochemistry at Eastern Connecticut State University should also take BIO\*122 General Biology II and talk to an advisor regarding which Fine Arts and Social Science electives will fulfill Eastern requirements.

## Addendum A

CCC courses that fulfill the LAC Tier 2 Arts and Humanities: Creative Expression requirement at Eastern:

- ART\* 111 Drawing I (3 cr.)
- ENG\* 281 Creative Writing (3 cr.)
- MUS\* 150 Class Piano I (3 cr.)
- THR\* 110 Acting I (3 cr.)

CCC courses that fulfill the LAC Tier 2 Individuals and Societies requirement at Eastern:

- CJS\* 210 Constitutional Law (3 cr.)
- ECE\* 182 Child Development (3 cr.)
- ECN\* 102 Principles of Microeconomics (3 cr.)
- PSY\* 105 Group Dynamics (3 cr.)
- PSY\* 204 Child & Adolescent Development (3 cr.)
- PSY\* 210 Death & Dying (3 cr.)
- PSY\* 256 Psychology of Men & Women (3 cr.)
- SOC\* 210 Sociology of the Family (3 cr.)

CCC courses that fulfill the LAC Tier 2 Cultural Perspectives requirement at Eastern:

- ART\* 208 Caribbean Art and Culture (3 cr.)
- ENG\* 291 Mythology (3 cr.)
- FRE\* 201 Intermediate French I (3 cr.)
- FRE\* 202 Intermediate French II (3 cr.)
- HIS\* 101 Western Civilization I (3 cr.)
- HIS\* 102 Western Civilization II (3 cr.)
- HIS\* 216 African-American History I (3 cr.)

Eastern's current database of transfer courses can also be found at:

[https://eweb.easternct.edu/wfbprod/bysktreq.p\\_ask\\_parms\\_to?displayMode=N](https://eweb.easternct.edu/wfbprod/bysktreq.p_ask_parms_to?displayMode=N)

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