Appendices
STEM Starter Academy – Year 4 Interim Report

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Table 1A: SSA Participants by Institution, Term, and Year				
Institution	Grant Year	Term	Primary participants	Secondary participants
Berkshire	Year 1	Spring 2014	0	84
		Summer 2014	21	144
	Year 2	Fall 2014	67	343
		Spring 2015	28	178
		Summer 2015	32	0
	Year 3	Fall 2015	66	702
		Spring 2016	68	676
		Summer 2016	52	56
	Year 4	Fall 2016	61	435
		Spring 2017	65	739
Bristol	Year 1	Spring 2014	13	392
		Summer 2014	76	219
	Year 2	Fall 2014	59	348
		Spring 2015	71	422
		Summer 2015	81	279
	Year 3	Fall 2015	52	245
		Spring 2016	108	727
		Summer 2016	142	147
	Year 4	Fall 2016	97	482
		Spring 2017	116	533
Bunker Hill	Year 1	Spring 2014	0	0
		Summer 2014	61	0
	Year 2	Fall 2014	40	0
		Spring 2015	90	0
		Summer 2015	57	0
	Year 3	Fall 2015	108	0
		Spring 2016	105	0
		Summer 2016	130	14
	Year 4	Fall 2016	60	10
		Spring 2017	104	0
Cape Cod	Year 1	Spring 2014	0	299
		Summer 2014	5	405
	Year 2	Fall 2014	300	151
		Spring 2015	320	875
		Summer 2015	103	1,212
	Year 3	Fall 2015	348	1,541
		Spring 2016	406	823
		Summer 2016	112	320
	Year 4	Fall 2016	364	629
		Spring 2017	464	411
Greenfield	Year 1	Spring 2014	0	115
		Summer 2014	18	235
	Year 2	Fall 2014	4	305
		Spring 2015	9	214
		Summer 2015	19	0
	Year 3	Fall 2015	11	0
		Spring 2016	28	500
		Summer 2016	27	70
	Year 4	Fall 2016	28	426
		Spring 2017	29	525

Table 1A: SSA Participants by Institution, Term, and Year				
Institution	Grant Year	Term	Primary participants	Secondary participants
Holyoke	Year 1	Spring 2014	0	770
		Summer 2014	72	15
	Year 2	Fall 2014	149	18
		Spring 2015	22	1,262
		Summer 2015	66	0
	Year 3	Fall 2015	0	0
		Spring 2016	14	0
		Summer 2016	41	14
	Year 4	Fall 2016	11	0
		Spring 2017	6	0
MassBay	Year 1	Spring 2014	0	477
		Summer 2014	154	0
	Year 2	Fall 2014	374	4
		Spring 2015	490	417
		Summer 2015	84	133
	Year 3	Fall 2015	231	350
		Spring 2016	294	590
		Summer 2016	169	211
	Year 4	Fall 2016	303	422
		Spring 2017	432	1,285
Massasoit	Year 1	Spring 2014	0	850
		Summer 2014	48	110
	Year 2	Fall 2014	643	0
		Spring 2015	715	40
		Summer 2015	29	0
	Year 3	Fall 2015	524	0
		Spring 2016	799	0
		Summer 2016	77	0
	Year 4	Fall 2016	39	0
		Spring 2017	51	0
Middlesex	Year 1	Spring 2014	101	152
		Summer 2014	45	0
	Year 2	Fall 2014	172	0
		Spring 2015	173	204
		Summer 2015	137	31
	Year 3	Fall 2015	158	493
		Spring 2016	151	1,341
		Summer 2016	142	353
	Year 4	Fall 2016	120	174
		Spring 2017	656	279
Mt. Wachusett	Year 1	Spring 2014	236	449
		Summer 2014	137	0
	Year 2	Fall 2014	337	0
		Spring 2015	416	288
		Summer 2015	18	0
	Year 3	Fall 2015	385	11
		Spring 2016	120	50
		Summer 2016	69	0
	Year 4	Fall 2016	475	300
		Spring 2017	521	433

Table 1A: SSA Participants by Institution, Term, and Year				
Institution	Grant Year	Term	Primary participants	Secondary participants
North Shore	Year 1	Spring 2014	0	250
		Summer 2014	55	1,220
	Year 2	Fall 2014	75	400
		Spring 2015	126	250
		Summer 2015	70	30
	Year 3	Fall 2015	275	30
		Spring 2016	226	75
		Summer 2016	76	250
	Year 4	Fall 2016	199	300
		Spring 2017	728	500
Northern Essex	Year 1	Spring 2014	2	209
		Summer 2014	16	0
	Year 2	Fall 2014	233	138
		Spring 2015	117	13
		Summer 2015	108	11
	Year 3	Fall 2015	64	1
		Spring 2016	213	19
		Summer 2016	255	41
	Year 4	Fall 2016	132	0
		Spring 2017	159	82
Quinsigamond	Year 1	Spring 2014	79	845
		Summer 2014	36	197
	Year 2	Fall 2014	265	34
		Spring 2015	311	114
		Summer 2015	0	29
	Year 3	Fall 2015	97	389
		Spring 2016	71	926
		Summer 2016	201	741
	Year 4	Fall 2016	215	1220
		Spring 2017	434	525
Roxbury	Year 1	Spring 2014	17	240
		Summer 2014	9	0
	Year 2	Fall 2014	7	0
		Spring 2015	7	0
		Summer 2015	59	0
	Year 3	Fall 2015	32	0
		Spring 2016	294	0
		Summer 2016	136	0
	Year 4	Fall 2016	322	0
		Spring 2017	267	0
STCC	Year 1	Spring 2014	0	530
		Summer 2014	33	0
	Year 2	Fall 2014	44	0
		Spring 2015	54	741
		Summer 2015	78	17
	Year 3	Fall 2015	79	430
		Spring 2016	87	434
		Summer 2016	129	20
	Year 4	Fall 2016	159	251
		Spring 2017	119	467

Table 2A: SSA Secondary Participants and Events by Institution, Term, and Year				
Institution	**Grant Year**	**Term**	**Secondary participants**	**Number of events and activities**
Berkshire	Year 1	Spring 2014	84	26
		Summer 2014	144	5
	Year 2	Fall 2014	343	15
		Spring 2015	178	17
		Summer 2015	0	0
	Year 3	Fall 2015	702	25
		Spring 2016	676	14
		Summer 2016	56	4
	Year 4	Fall 2016	435	16
		Spring 2017	739	36
Bristol	Year 1	Spring 2014	392	11
		Summer 2014	219	10
	Year 2	Fall 2014	348	10
		Spring 2015	422	20
		Summer 2015	279	3
	Year 3	Fall 2015	245	6
		Spring 2016	727	25
		Summer 2016	147	8
	Year 4	Fall 2016	482	16
		Spring 2017	533	15
Bunker Hill	Year 1	Spring 2014	0	0
		Summer 2014	0	0
	Year 2	Fall 2014	0	0
		Spring 2015	0	0
		Summer 2015	0	0
	Year 3	Fall 2015	0	0
		Spring 2016	0	0
		Summer 2016	14	3
	Year 4	Fall 2016	10	1
		Spring 2017	0	0
Cape Cod	Year 1	Spring 2014	299	7
		Summer 2014	405	6
	Year 2	Fall 2014	151	7
		Spring 2015	875	24
		Summer 2015	1,212	19
	Year 3	Fall 2015	1,541	26
		Spring 2016	823	36
		Summer 2016	320	12
	Year 4	Fall 2016	629	23
		Spring 2017	411	32
Greenfield	Year 1	Spring 2014	115	4
		Summer 2014	235	9
	Year 2	Fall 2014	305	3
		Spring 2015	214	12
		Summer 2015	0	0
	Year 3	Fall 2015	0	0
		Spring 2016	500	15
		Summer 2016	70	1
	Year 4	Fall 2016	426	120
		Spring 2017	525	38

Table 2A: SSA Secondary Participants and Events by Institution, Term, and Year				
Institution	**Grant Year**	**Term**	**Secondary participants**	**Number of events and activities**
Holyoke	Year 1	Spring 2014	770	24
		Summer 2014	15	5
	Year 2	Fall 2014	18	1
		Spring 2015	1,262	13
		Summer 2015	0	0
	Year 3	Fall 2015	0	0
		Spring 2016	0	0
		Summer 2016	14	3
	Year 4	Fall 2016	0	0
		Spring 2017	0	0
MassBay	Year 1	Spring 2014	477	5
		Summer 2014	0	0
	Year 2	Fall 2014	4	2
		Spring 2015	417	14
		Summer 2015	133	8
	Year 3	Fall 2015	350	14
		Spring 2016	590	25
		Summer 2016	211	8
	Year 4	Fall 2016	422	14
		Spring 2017	1285	26
Massasoit	Year 1	Spring 2014	850	23
		Summer 2014	110	3
	Year 2	Fall 2014	0	0
		Spring 2015	40	10
		Summer 2015	0	0
	Year 3	Fall 2015	0	0
		Spring 2016	0	0
		Summer 2016	0	0
	Year 4	Fall 2016	0	0
		Spring 2017	0	
Middlesex	Year 1	Spring 2014	152	3
		Summer 2014	0	0
	Year 2	Fall 2014	0	0
		Spring 2015	204	9
		Summer 2015	31	1
	Year 3	Fall 2015	493	6
		Spring 2016	1341	7
		Summer 2016	353	7
	Year 4	Fall 2016	174	5
		Spring 2017	279	8
Mt. Wachusett	Year 1	Spring 2014	449	43
		Summer 2014	0	0
	Year 2	Fall 2014	0	0
		Spring 2015	288	10
		Summer 2015	0	0
	Year 3	Fall 2015	11	1
		Spring 2016	50	1
		Summer 2016	0	0
	Year 4	Fall 2016	300	3
		Spring 2017	433	21

Table 2A: SSA Secondary Participants and Events by Institution, Term, and Year				
Institution	**Grant Year**	**Term**	**Secondary participants**	**Number of events and activities**
North Shore	Year 1	Spring 2014	250	3
		Summer 2014	1,220	4
	Year 2	Fall 2014	400	7
		Spring 2015	250	4
		Summer 2015	30	5
	Year 3	Fall 2015	30	1
		Spring 2016	75	8
		Summer 2016	250	8
	Year 4	Fall 2016	300	15
		Spring 2017	500	20
Northern Essex	Year 1	Spring 2014	209	6
		Summer 2014	0	0
	Year 2	Fall 2014	138	4
		Spring 2015	13	1
		Summer 2015	11	1
	Year 3	Fall 2015	1	1
		Spring 2016	19	2
		Summer 2016	41	12
	Year 4	Fall 2016	0	0
		Spring 2017	82	4
Quinsigamond	Year 1	Spring 2014	845	8
		Summer 2014	197	7
	Year 2	Fall 2014	34	7
		Spring 2015	114	2
		Summer 2015	29	2
	Year 3	Fall 2015	389	7
		Spring 2016	926	22
		Summer 2016	741	18
	Year 4	Fall 2016	1220	14
		Spring 2017	525	34
Roxbury	Year 1	Spring 2014	240	2
		Summer 2014	0	0
	Year 2	Fall 2014	0	0
		Spring 2015	0	0
		Summer 2015	0	-
	Year 3	Fall 2015	0	0
		Spring 2016	0	0
		Summer 2016	0	0
	Year 4	Fall 2016	0	0
		Spring 2017	0	0
STCC	Year 1	Spring 2014	530	8
		Summer 2014	0	0
	Year 2	Fall 2014	0	0
		Spring 2015	741	20
		Summer 2015	17	1
	Year 3	Fall 2015	430	13
		Spring 2016	434	32
		Summer 2016	20	2
	Year 4	Fall 2016	251	78
		Spring 2017	467	12

Table 3A: Primary Participants' Service Descriptions by Institution, Term, and Year						
Institution	**Grant Year**	**Term**	**Number of primary participants**	**Number of primary participants who received direct (SSA grant subsidized) financial support**	**Number of primary participants who received extra or targeted supports**	**Number of primary participants who received targeted STEM pathway and/or STEM career counseling**
Berkshire	Year 1	Spring 2014	0	0	0	0
		Summer 2014	21	21	21	21
	Year 2	Fall 2014	67	67	21	18
		Spring 2015	28	23	19	19
		Summer 2015	32	32	32	32
	Year 3	Fall 2015	66	57	31	45
		Spring 2016	68	54	16	33
		Summer 2016	52	36	0	40
	Year 4	Fall 2016	61	49	46	34
		Spring 2017	65	35	15	38
Bristol	Year 1	Spring 2014	13	13	13	13
		Summer 2014	76	76	34	45
	Year 2	Fall 2014	59	17	39	49
		Spring 2015	71	18	52	29
		Summer 2015	81	35	21	27
	Year 3	Fall 2015	52	15	22	37
		Spring 2016	108	21	44	64
		Summer 2016	142	77	56	47
	Year 4	Fall 2016	97	0	58	53
		Spring 2017	116	58	32	37
Bunker Hill	Year 1	Spring 2014	0	0	0	0
		Summer 2014	61	61	61	61
	Year 2	Fall 2014	40	40	40	40
		Spring 2015	90	90	90	90
		Summer 2015	57	57	57	57
	Year 3	Fall 2015	108	108	108	108
		Spring 2016	105	0	105	105
		Summer 2016	130	114	130	130
	Year 4	Fall 2016	60	0	60	0
		Spring 2017	104	0	104	33
Cape Cod	Year 1	Spring 2014	0	0	0	0
		Summer 2014	5	5	5	5
	Year 2	Fall 2014	300	29	300	46
		Spring 2015	320	37	98	98
		Summer 2015	103	31	103	103
	Year 3	Fall 2015	348	20	273	99
		Spring 2016	406	28	330	89
		Summer 2016	112	38	110	55
	Year 4	Fall 2016	364	10	313	67
		Spring 2017	464	20	402	94
Greenfield	Year 1	Spring 2014	0	0	0	0
		Summer 2014	18	18	12	18
	Year 2	Fall 2014	4	0	4	4
		Spring 2015	9	0	7	0
		Summer 2015	19	19	19	19
	Year 3	Fall 2015	11	11	11	0
		Spring 2016	28	28	4	0
		Summer 2016	27	27	22	22
	Year 4	Fall 2016	28	5	28	0
		Spring 2017	29	10	29	19

Table 3A: Primary Participants' Service Descriptions by Institution, Term, and Year						
Institution	**Grant Year**	**Term**	**Number of primary participants**	**Number of primary participants who received direct (SSA grant subsidized) financial support**	**Number of primary participants who received extra or targeted supports**	**Number of primary participants who received targeted STEM pathway and/or STEM career counseling**
Holyoke	Year 1	Spring 2014	0	0	0	0
		Summer 2014	72	72	71	71
	Year 2	Fall 2014	149	141	149	7
		Spring 2015	22	17	17	19
		Summer 2015	66	41	66	66
	Year 3	Fall 2015	0	0	0	0
		Spring 2016	14	14	14	14
		Summer 2016	41	41	41	41
	Year 4	Fall 2016	11	11	11	7
		Spring 2017	6	6	0	6
MassBay	Year 1	Spring 2014	0	0	0	0
		Summer 2014	154	154	154	154
	Year 2	Fall 2014	374	5	306	70
		Spring 2015	490	15	292	264
		Summer 2015	84	14	20	72
	Year 3	Fall 2015	231	1	41	197
		Spring 2016	294	1	51	244
		Summer 2016	169	33	59	147
	Year 4	Fall 2016	303	2	54	252
		Spring 2017	432	4	181	255
Massasoit	Year 1	Spring 2014	0	0	0	0
		Summer 2014	48	48	48	48
	Year 2	Fall 2014	643	643	643	643
		Spring 2015	715	715	702	16
		Summer 2015	29	29	29	16
	Year 3	Fall 2015	524	524	524	91
		Spring 2016	799	799	799	127
		Summer 2016	77	77	77	20
	Year 4	Fall 2016	39	39	39	39
		Spring 2017	51	51	51	51
Middlesex	Year 1	Spring 2014	101	26	20	45
		Summer 2014	45	33	45	33
	Year 2	Fall 2014	172	16	144	148
		Spring 2015	173	9	173	97
		Summer 2015	137	47	137	120
	Year 3	Fall 2015	158	4	158	146
		Spring 2016	151	7	151	66
		Summer 2016	142	113	142	64
	Year 4	Fall 2016	120	8	117	36
		Spring 2017	656	15	154	332
Mt. Wachusett	Year 1	Spring 2014	236	0	0	0
		Summer 2014	137	137	0	23
	Year 2	Fall 2014	337	0	0	235
		Spring 2015	416	0	0	8
		Summer 2015	18	18	2	16
	Year 3	Fall 2015	385	0	50	76
		Spring 2016	120	0	32	83
		Summer 2016	69	69	69	56
	Year 4	Fall 2016	475	0	21	161
		Spring 2017	521	0	208	343

Table 3A: Primary Participants' Service Descriptions by Institution, Term, and Year						
Institution	**Grant Year**	**Term**	**Number of primary participants**	**Number of primary participants who received direct (SSA grant subsidized) financial support**	**Number of primary participants who received extra or targeted supports**	**Number of primary participants who received targeted STEM pathway and/or STEM career counseling**
North Shore	Year 1	Spring 2014	0	0	0	0
		Summer 2014	55	55	55	31
	Year 2	Fall 2014	75	75	75	0
		Spring 2015	126	126	126	0
		Summer 2015	70	33	70	19
	Year 3	Fall 2015	275	22	253	0
		Spring 2016	226	13	226	103
		Summer 2016	76	76	11	39
	Year 4	Fall 2016	199	199	199	0
		Spring 2017	728	19	728	228
Northern Essex	Year 1	Spring 2014	2	2	0	0
		Summer 2014	16	0	0	16
	Year 2	Fall 2014	233	5	233	228
		Spring 2015	117	20	100	0
		Summer 2015	108	71	34	0
	Year 3	Fall 2015	64	0	0	0
		Spring 2016	213	7	152	0
		Summer 2016	255	0	26	0
	Year 4	Fall 2016	132	0	101	0
		Spring 2017	159	12	109	0
Quinsigamond	Year 1	Spring 2014	79	53	53	26
		Summer 2014	36	36	0	18
	Year 2	Fall 2014	265	265	0	58
		Spring 2015	311	0	177	311
		Summer 2015	0	0	0	0
	Year 3	Fall 2015	97	0	89	83
		Spring 2016	71	71	15	38
		Summer 2016	201	201	0	148
	Year 4	Fall 2016	215	1	102	137
		Spring 2017	434	5	388	363
Roxbury	Year 1	Spring 2014	17	17	17	17
		Summer 2014	9	9	9	9
	Year 2	Fall 2014	7	7	7	7
		Spring 2015	7	7	7	7
		Summer 2015	59	52	0	0
	Year 3	Fall 2015	32	0	12	0
		Spring 2016	294	0	267	0
		Summer 2016	136	42	67	0
	Year 4	Fall 2016	322	0	322	0
		Spring 2017	267	31	267	0
STCC	Year 1	Spring 2014	0	0	0	0
		Summer 2014	33	33	33	0
	Year 2	Fall 2014	44	31	41	3
		Spring 2015	54	2	30	0
		Summer 2015	78	28	28	28
	Year 3	Fall 2015	79	4	19	14
		Spring 2016	87	2	34	17
		Summer 2016	129	47	54	49
	Year 4	Fall 2016	159	24	84	12
		Spring 2017	119	20	20	14

SSA Student Experience Survey

Name of Community College is interested in hearing from students about their experiences in science, technology, engineering, and mathematics (STEM) professional or degree programs. **The survey will take about 10 minutes to complete.**

Your participation is completely voluntary and your responses will be anonymous. Your choice to participate or not will not impact your grades or your status with the college.

Your responses will be used to help inform administrators at Name of Community College about the climate of its STEM programs as well as to inform state-level administrators about Massachusetts community college STEM programs more generally.

We thank you for taking time out of your busy schedule to complete this survey. If you have any questions about this research project, please feel free to contact us either by e-mail [email] or telephone [phone].

Sincerely,

[Name of contact]

If you DO want to participate, please check *I AGREE TO PARTICIPATE* at the bottom of this page, print or save a copy of this letter for your records, and proceed to the survey.

If you DO NOT want to participate, please stop now and do not proceed to the survey.

By checking the box below and participating in the survey, I acknowledge that I have read and understood the above information and agree to participate in this program evaluation project.

☐ I agree to participate >> continue to survey

STEM Starter Academy Student Experience Survey, V2 Spring 2017

1. Impacts of participation

Please indicate to what extent you agree the following aspects of your student experience were impacted by participation in Name of Community College's STEM-related activities.

My participation in Name of SSA Program or Intervention at Name of Community College *resulted in …*	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
Stronger connections with faculty	❍	❍	❍	❍	❍
Stronger connections with other students	❍	❍	❍	❍	❍
Better knowledge of available academic supports/resources	❍	❍	❍	❍	❍
Improved performance and/or achievement in courses	❍	❍	❍	❍	❍
Expanded knowledge of transfer process and transfer options	❍	❍	❍	❍	❍
Expanded knowledge of STEM majors	❍	❍	❍	❍	❍
Expanded knowledge of STEM fields and careers	❍	❍	❍	❍	❍
Improved employability in desired career or field	❍	❍	❍	❍	❍
More contacts with industry professionals	❍	❍	❍	❍	❍
Greater knowledge about job openings and employment opportunities	❍	❍	❍	❍	❍

STEM Starter Academy Student Experience Survey, V2 Spring 2017

2. STEM self-efficacy

Please indicate to what extent you agree or disagree with the following statements.

After having participated in *Name of SSA Program or Intervention* at Name of Community College …	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
I can better understand the content in a STEM course.	❍	❍	❍	❍	❍
I feel more confident about asking questions in my STEM courses.	❍	❍	❍	❍	❍
I am more confident that I can give a correct answer during a STEM course.	❍	❍	❍	❍	❍
I am more likely to do well on a test in a STEM course.	❍	❍	❍	❍	❍
I am more likely to get an "A" when I am in a STEM course.	❍	❍	❍	❍	❍
I feel more confident that I will be able to use STEM-related knowledge and skills in my future career when needed.	❍	❍	❍	❍	❍
I feel more confident when using STEM knowledge and skills outside of school.	❍	❍	❍	❍	❍
I feel more confident that I can think like a mathematician, scientist, engineer, and/or other STEM professional.	❍	❍	❍	❍	❍

3. Use and helpfulness of supports

For each of the following STEM-related supports you may have received please indicate how helpful the support was during your time in Name of Community College*'s* STEM program.

If you don't know whether or not you received the support, please mark "Did not receive this support."

STEM-related supports	Did not receive this support	I received this support and found it to be:		
		Not at all helpful	Somewhat helpful	Very helpful
Advising	❍	❍	❍	❍
Tutoring	❍	❍	❍	❍
Peer mentoring	❍	❍	❍	❍
Math prep program or boot camp	❍	❍	❍	❍
Developmental math course	❍	❍	❍	❍
College-readiness workshop or course	❍	❍	❍	❍
Free textbooks or access codes	❍	❍	❍	❍
Stipend	❍	❍	❍	❍
Scholarship	❍	❍	❍	❍
Assistance with finding internships	❍	❍	❍	❍

4. Participation in STEM activities

For each of the following STEM-related activities, you may have participated in, please indicate how helpful the activity was during your time in Name of Community College's STEM program.

If you don't know whether or not you participated in the activity, please mark "Did not participate in this activity."

STEM-related activity	Did not participate in this activity	I participated in this activity and found it to be:		
		Not at all helpful	Somewhat helpful	Very helpful
Internships	❍	❍	❍	❍
Research	❍	❍	❍	❍
Speakers and presentations	❍	❍	❍	❍
Field trips	❍	❍	❍	❍
Career fairs	❍	❍	❍	❍
Career development (e.g. mock interviews, resume writing, etc.)	❍	❍	❍	❍
Mentorship program	❍	❍	❍	❍

5. Connections with peers

To what extent were you able to form connections with other students in the *SSA/STEM program* at Name of Community College?

❍Not at all ❍To some extent ❍To a great extent

6. Strengths of the program

a. Please list the top three strengths of the *STEM/SSA program*.
[Provide three short answer fields here]

7. Needed improvements for the program

a. Please list the top three ways in which you believe Name of Community College could improve the *STEM/SSA program*.
[Provide three short answer fields here]

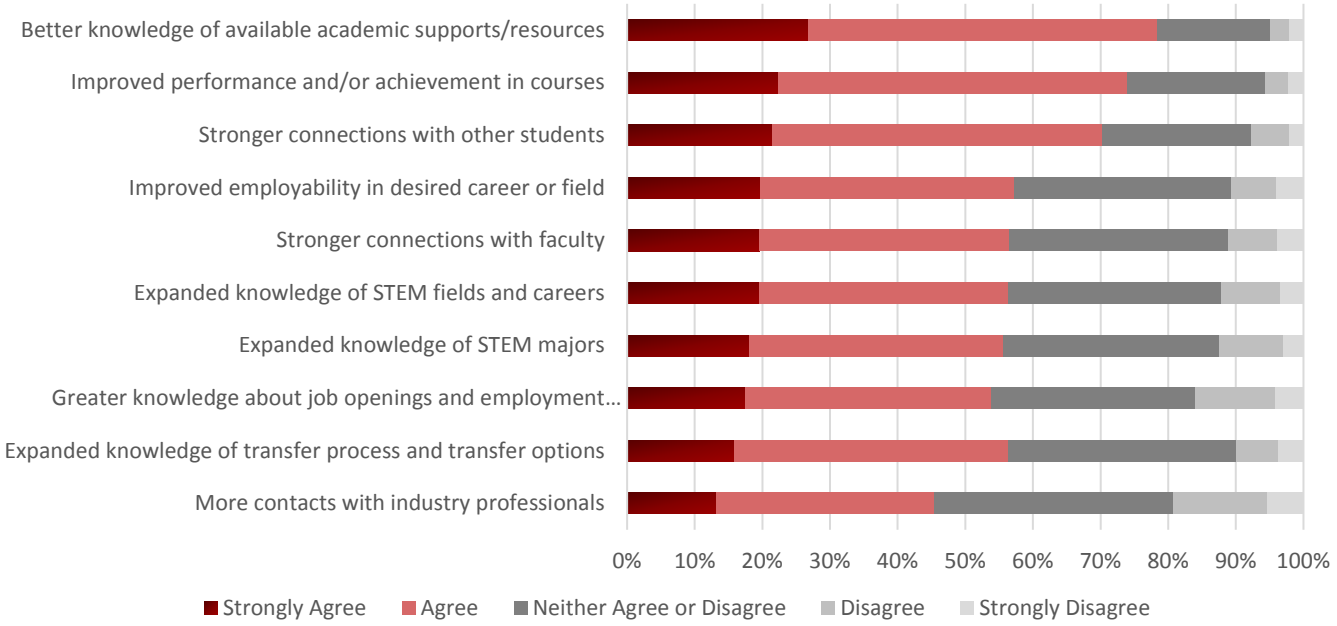
Student Feedback: Student Experience Survey Fall 2016

The Student Experience Survey collects anonymous feedback from SSA primary participants about their experiences with SSA programming and supports in a way that is comparable across campuses. The survey contains 5 closed-ended questions (which are summarized below) and 2 open-ended questions about program strengths and program improvements. Response rates varied across campuses, and across questions.

Impacts of Participation

"Please indicate to what extent you agree the following aspects of your student experience were impacted by participation in *Name of Community College's* STEM-related activities."

Figure 1: Impacts of Participation

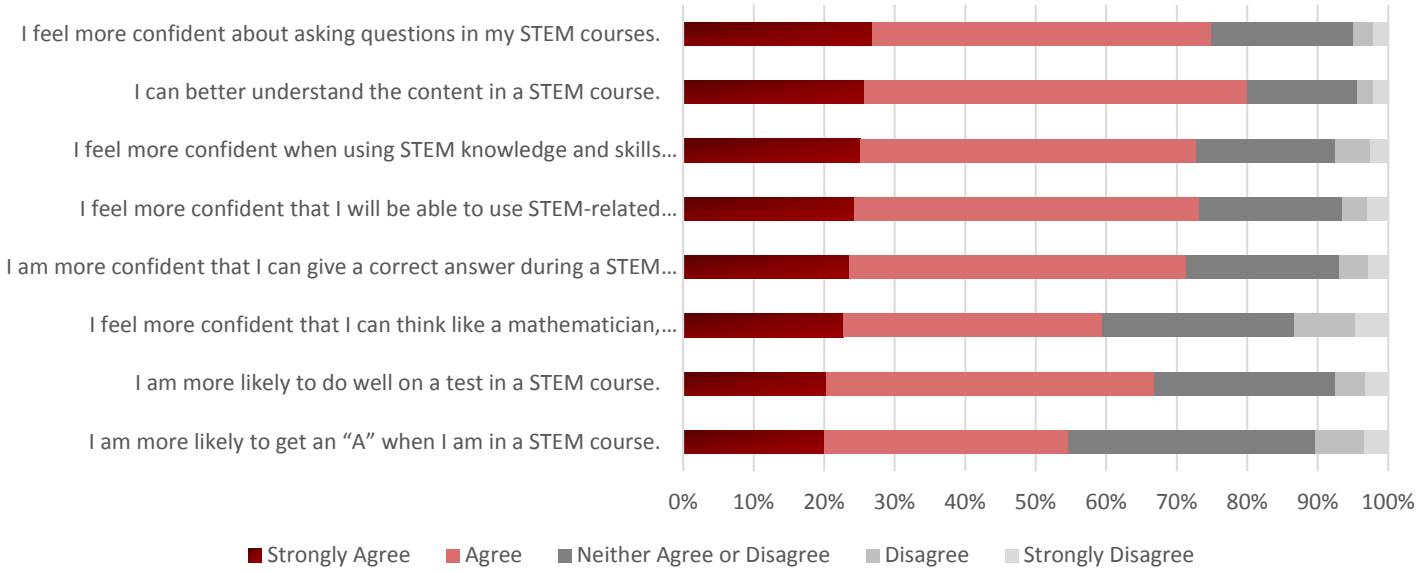


My participation in Name of SSA Program or Intervention at Name of Community College *resulted in …*	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
More contacts with industry professionals	13%	32%	35%	14%	5%
Expanded knowledge of transfer process and transfer options	16%	41%	34%	6%	4%
Greater knowledge about job openings and employment opportunities	17%	36%	30%	12%	4%
Expanded knowledge of STEM majors	18%	37%	32%	9%	3%
Expanded knowledge of STEM fields and careers	19%	37%	32%	9%	3%
Stronger connections with faculty	20%	37%	32%	7%	4%
Improved employability in desired career or field	20%	38%	32%	7%	4%
Stronger connections with other students	21%	49%	22%	6%	2%
Improved performance and/or achievement in courses	22%	52%	21%	3%	2%
Better knowledge of available academic supports/resources	27%	52%	17%	3%	2%

STEM Self-Efficacy

"Please indicate to what extent you agree or disagree with the following statements. ... After having participated in *Name of SSA Program or Intervention at Name of Community College …* "

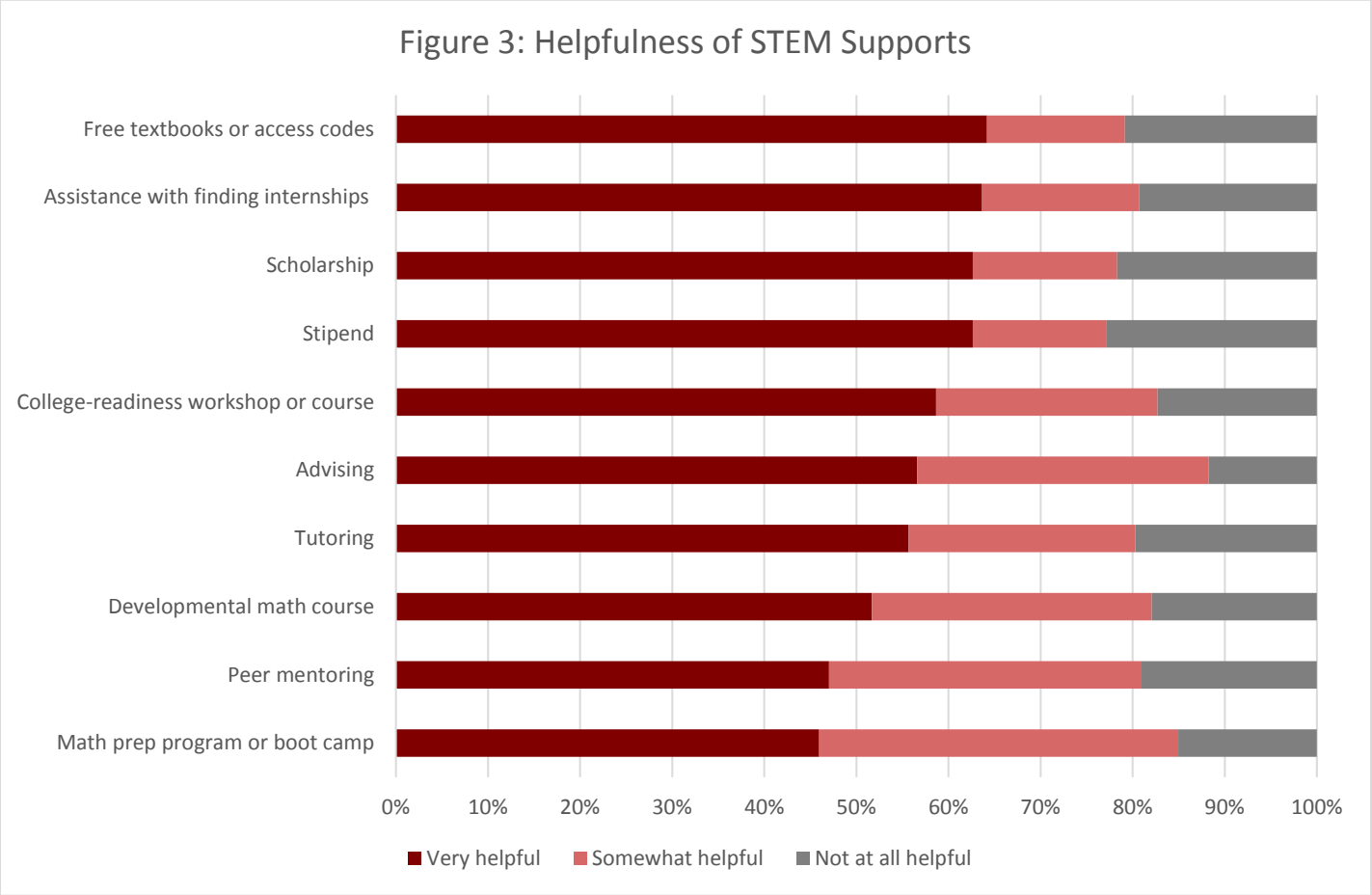
Figure 2: STEM Self-Efficacy



***After* having participated in *Name of SSA Program or Intervention* at Name of Community College …**	**Strongly Agree**	**Agree**	**Neither Agree or Disagree**	**Disagree**	**Strongly Disagree**
I am more likely to get an "A" when I am in a STEM course.	20%	35%	35%	7%	3%
I am more likely to do well on a test in a STEM course.	20%	47%	26%	4%	3%
I feel more confident that I can think like a mathematician, scientist, engineer, and/or other STEM professional.	23%	37%	27%	9%	5%
I am more confident that I can give a correct answer during a STEM course.	24%	48%	22%	4%	3%
I feel more confident that I will be able to use STEM-related knowledge and skills in my future career when needed.	24%	49%	20%	4%	3%
I feel more confident when using STEM knowledge and skills outside of school.	25%	48%	20%	5%	3%
I can better understand the content in a STEM course.	26%	54%	16%	2%	2%
I feel more confident about asking questions in my STEM courses.	27%	48%	20%	3%	2%

Helpfulness of STEM Supports

Please indicate whether you received the following STEM-related supports. If you did receive the support, please indicate how helpful the support was during your time in *Name of Community College's* STEM program."[1]



	I found the support:		
	Very helpful	Somewhat helpful	Not at all helpful
Free textbooks or access codes	64%	15%	21%
Assistance with finding internships	64%	17%	19%
Stipend	63%	14%	23%
Scholarship	63%	16%	22%
College-readiness workshop or course	59%	24%	17%
Advising	57%	32%	12%
Tutoring	56%	25%	20%
Developmental math course	52%	30%	18%
Peer mentoring	47%	34%	19%
Math prep program or boot camp	46%	39%	15%

[1] Fall 2016 was the last time this version of the question was used. The figure and table only show responses from students who rated the support for its helpfulness (and percentages are calculated out of the students who gave these ratings). Yes, No, and NA responses are excluded.

Helpfulness of STEM Activities

Please indicate whether you participated in each of the STEM-related activities. If you did participate in the activity, please indicate how helpful the activity was during your time in *Name of Community College's* STEM program? [2]

Figure 4: Helpfulness of STEM Activities

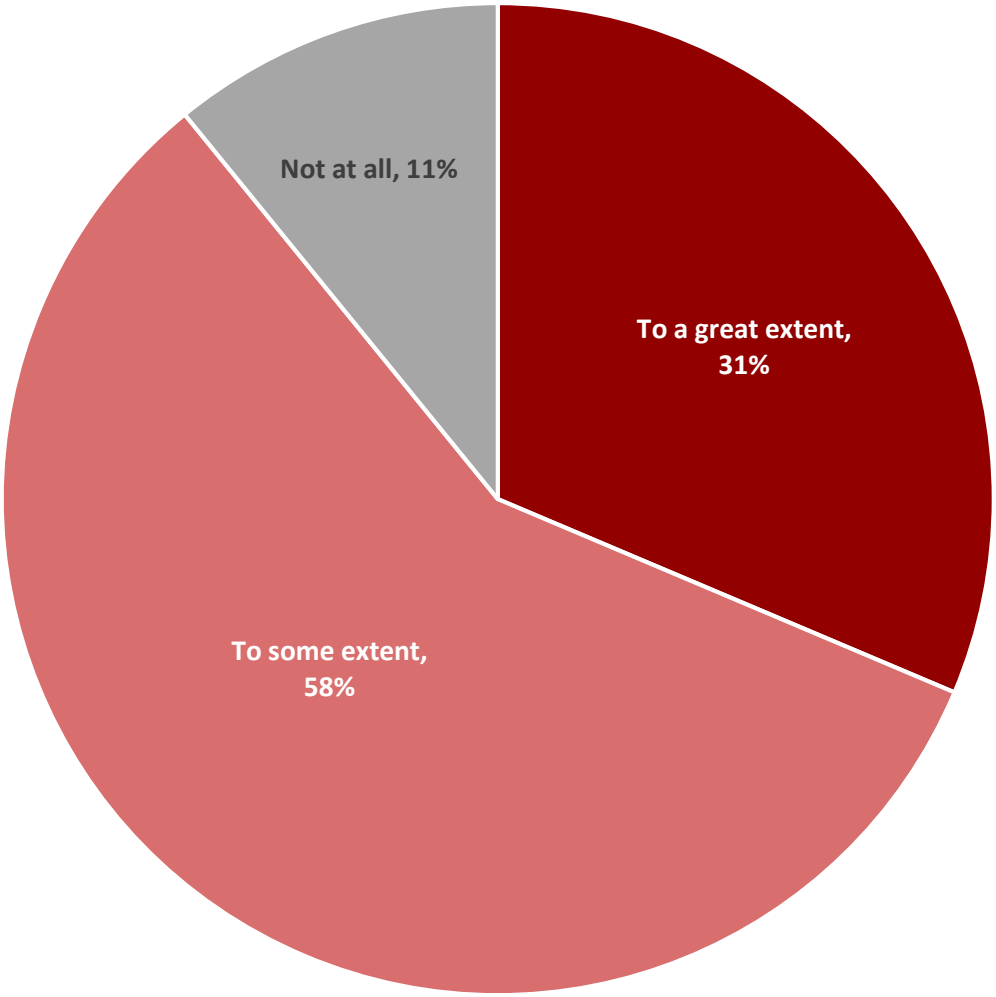
	Very helpful	Somewhat helpful	Not at all helpful
Career development (e.g. mock interviews, resume writing, etc.)	62%	24%	14%
Mentorship program	57%	26%	17%
Career fairs	55%	31%	14%
Internships	55%	30%	15%
Research	54%	32%	14%
Speakers and presentations	52%	34%	14%
Field trips	43%	26%	31%

[2] Fall 2016 was the last time this version of the question was used. The figure and table only show responses from students who rated the activity for its helpfulness. Yes, No, and NA responses are excluded.

Connections with Peers

To what extent were you able to form connections with other students in the *SSA/STEM program at Name of Community College*?

Figure 5: Extent of Connections with Peers



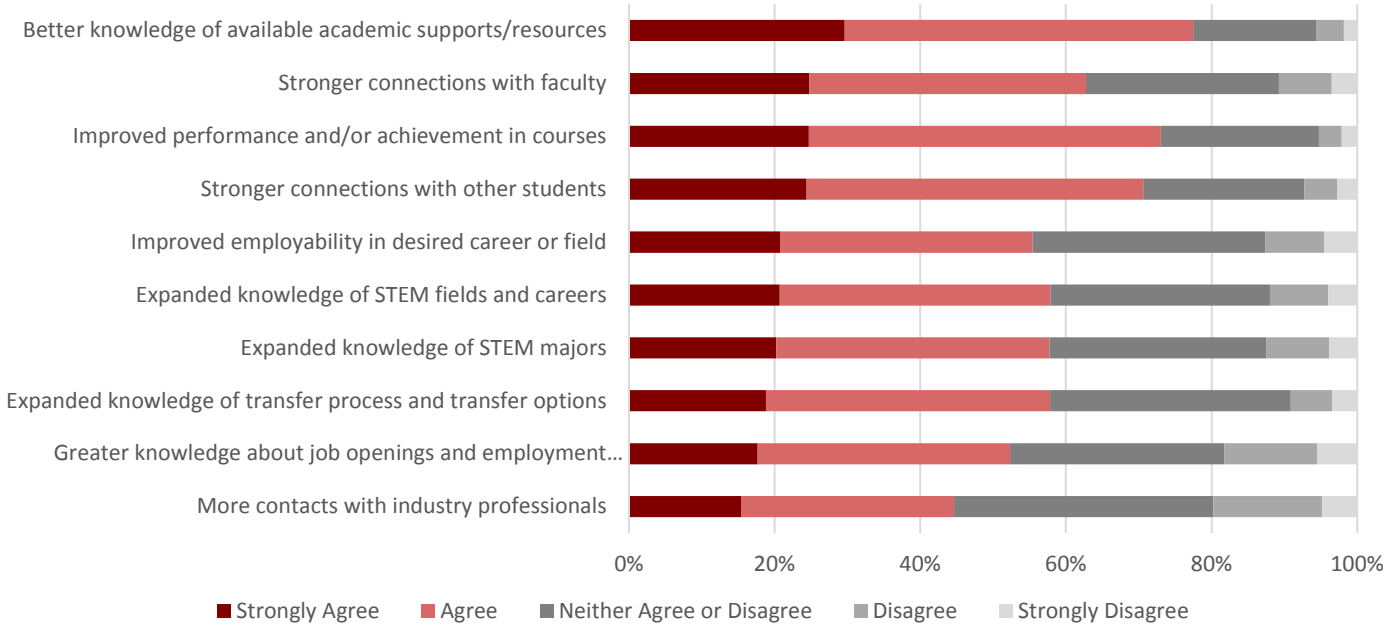
Student Feedback: Student Experience Survey Spring 2017

The Student Experience Survey collects anonymous feedback from SSA primary participants about their experiences with SSA programming and supports in a way that is comparable across campuses. The survey contains 5 closed-ended questions (which are summarized below) and 2 open-ended questions about program strengths and program improvements. Response rates varied across campuses, and across questions.

Impacts of Participation

"Please indicate to what extent you agree the following aspects of your student experience were impacted by participation in *Name of Community College's* STEM-related activities."

Figure 1: Impacts of Participation

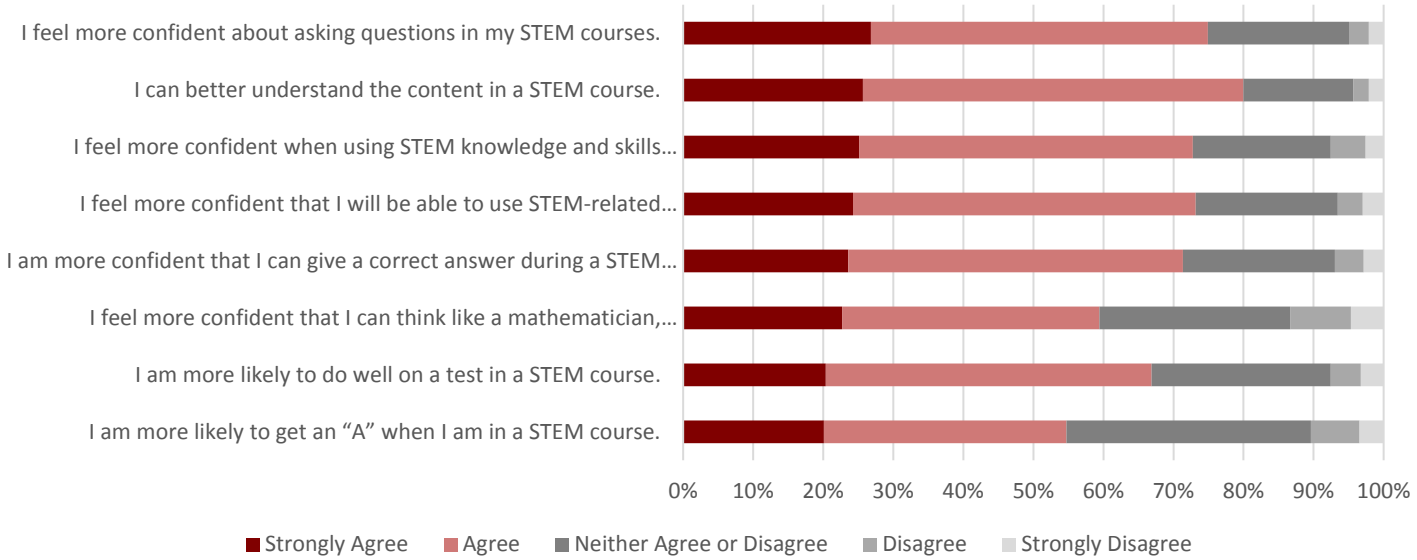


My participation in Name of SSA Program or Intervention at Name of Community College *resulted in …*	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
More contacts with industry professionals	15%	29%	36%	15%	5%
Greater knowledge about job openings and employment opportunities	18%	35%	29%	13%	6%
Expanded knowledge of transfer process and transfer options	19%	39%	33%	6%	3%
Expanded knowledge of STEM majors	20%	38%	30%	9%	4%
Expanded knowledge of STEM fields and careers	21%	37%	30%	8%	4%
Improved employability in desired career or field	21%	35%	32%	8%	5%
Stronger connections with other students	24%	46%	22%	5%	3%
Improved performance and/or achievement in courses	25%	48%	22%	3%	2%
Stronger connections with faculty	25%	38%	26%	7%	3%
Better knowledge of available academic supports/resources	30%	48%	17%	4%	2%

STEM Self-Efficacy

"Please indicate to what extent you agree or disagree with the following statements. ... After having participated in *Name of SSA Program or Intervention at Name of Community College …* "

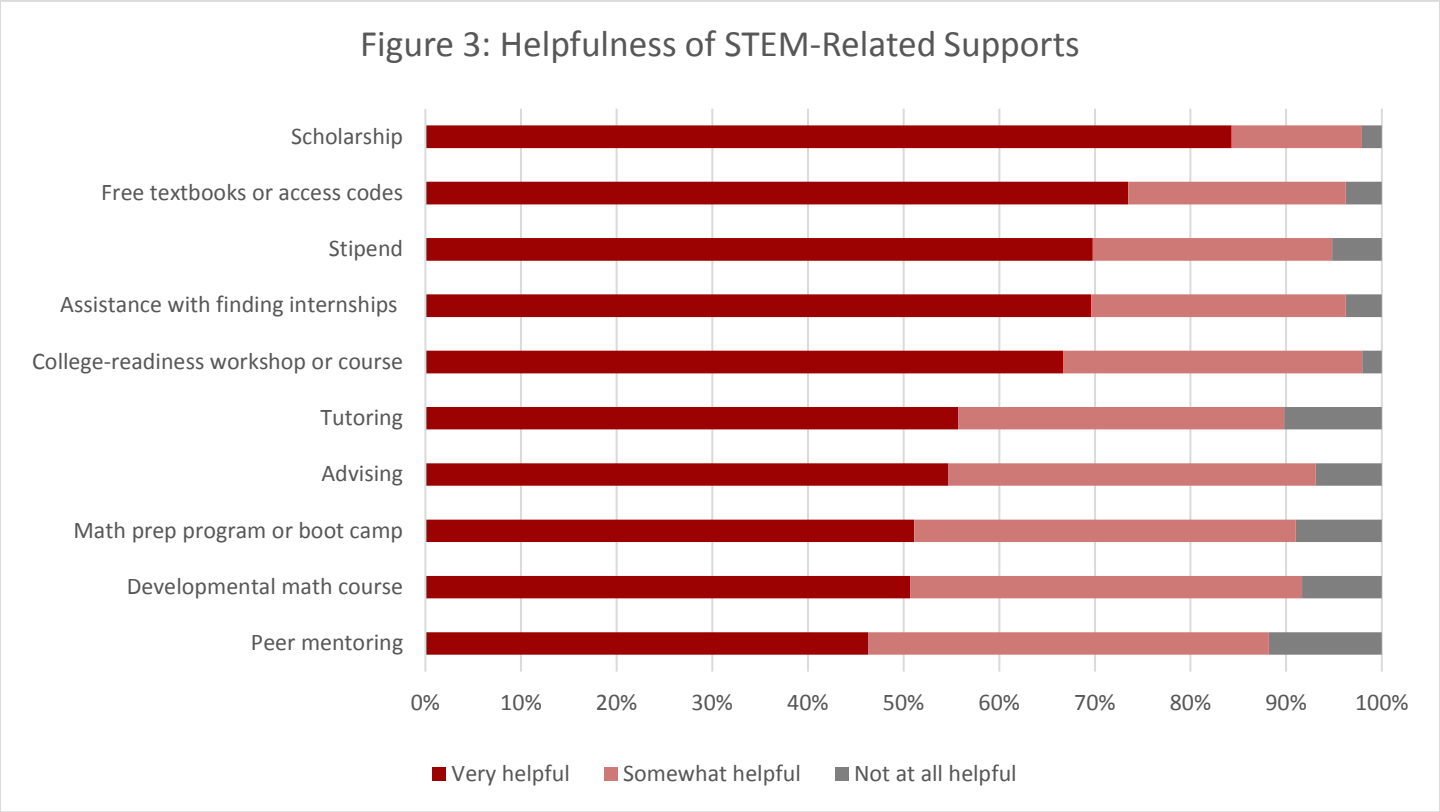
Figure 2: STEM Self-Efficacy



***After* having participated in *Name of SSA Program or Intervention* at Name of Community College …**	**Strongly Agree**	**Agree**	**Neither Agree or Disagree**	**Disagree**	**Strongly Disagree**
I am more likely to get an "A" when I am in a STEM course.	20%	35%	35%	7%	3%
I am more likely to do well on a test in a STEM course.	20%	47%	26%	4%	3%
I feel more confident that I can think like a mathematician, scientist, engineer, and/or other STEM professional.	23%	37%	27%	9%	5%
I am more confident that I can give a correct answer during a STEM course.	24%	48%	22%	4%	3%
I feel more confident that I will be able to use STEM-related knowledge and skills in my future career when needed.	24%	49%	20%	4%	3%
I feel more confident when using STEM knowledge and skills outside of school.	25%	48%	20%	5%	3%
I can better understand the content in a STEM course.	26%	54%	16%	2%	2%
I feel more confident about asking questions in my STEM courses.	27%	48%	20%	3%	2%

Helpfulness of STEM Supports

"For each of the following STEM-related supports you may have received please indicate how helpful the support was during your time in Name of Community College's STEM program."[3]

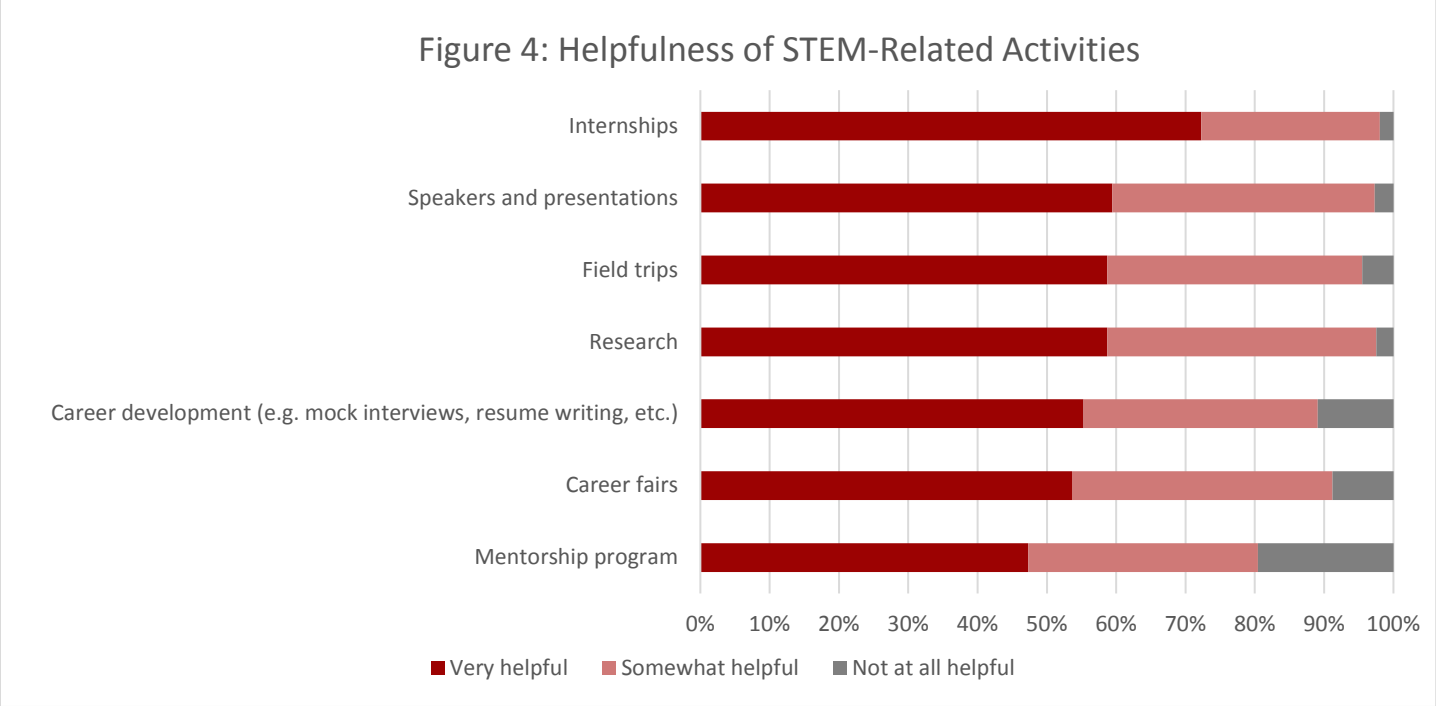


	Received and rated support				Did not receive this support	
	Very helpful	Somewhat helpful	Not at all helpful	N	N	% of total
Scholarship	84%	14%	2%	140	190	58%
Free textbooks or access codes	73%	23%	4%	132	202	60%
Stipend	70%	25%	5%	96	231	71%
Assistance with finding internships	70%	27%	4%	158	172	52%
College-readiness workshop or course	67%	31%	2%	147	178	55%
Tutoring	56%	34%	10%	352	354	50%
Advising	55%	38%	7%	448	247	36%
Math prep program or boot camp	51%	40%	9%	311	370	54%
Developmental math course	51%	41%	8%	300	383	56%
Peer mentoring	46%	42%	12%	313	385	55%

[3] For the Spring 2017 collection, this new version of Question 3 was introduced giving students the option to choose "I did not receive this support" OR "I received this support and found it to be … (very helpful), (somewhat helpful), (not at all helpful)." The figure only shows the responses of those who indicated that had received the support and rated the activity.

Helpfulness of STEM Activities

"For each of the following STEM-related activities you may have participated in please indicate how helpful the support was during your time in *Name of Community College*'s STEM program."[4]

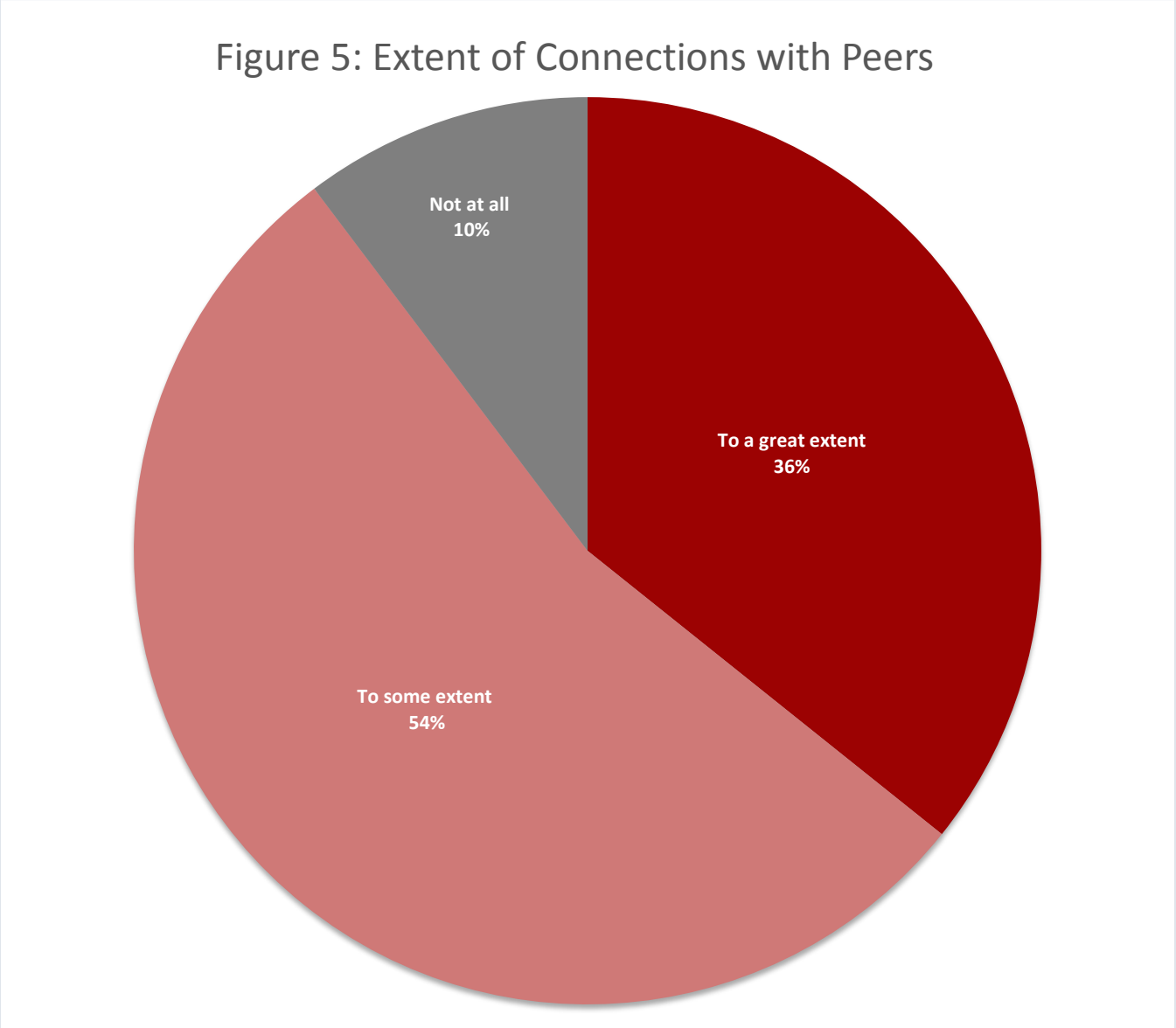


	Participated and rated activity				Did not participate in this activity	
	Very helpful	Somewhat helpful	Not at all helpful	N	N	% of total
Internships	72%	26%	2%	101	231	70%
Speakers and presentations	59%	38%	3%	185	149	45%
Field trips	59%	37%	4%	356	288	45%
Research	59%	39%	2%	121	212	64%
Career development (e.g. mock interviews, resume writing, etc.)	55%	34%	11%	293	394	57%
Career fairs	54%	38%	9%	330	340	51%
Mentorship program	47%	33%	20%	220	508	70%

[4] For the Spring 2017 collection, this new version of Question 3 was introduced giving students the option to choose "I did not participate in this activity" OR "I participated in this activity and found it to be … (very helpful), (somewhat helpful), (not at all helpful)." The figure only shows the responses of those who indicated that that participated and rated the activity. For most activities, most respondents indicated they had not participated.

Connections with Peers

To what extent were you able to form connections with other students in the *SSA/STEM program at Name of Community College*?



STEM Starter Academy
Year 4 Evaluation Plan
7/26/2016

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INTRODUCTION

Following is a proposed plan for evaluation and technical assistance to be provided by the University of Massachusetts Donahue Institute (UMDI) during the fourth year of the STEM Starter Academy (SSA) Initiative. The products and approaches described within reflect an understanding of the needs of DHE and campuses and correspond to a specific budget ($256,000) that may or may not be available. This document is subject to change based on agreement between UMDI and DHE.

In many ways, Year 4 might be seen as a pivotal year for the evaluation. It is the first year by which a cohort of SSA students will have had the opportunity to complete two full academic years of enrollment and therefore, the first year in which key program outcomes (e.g., program completion) can be properly assessed. By plan, the evaluation in Year 4 will commit significant resources to quantitative analysis with a primary objective of determining the extent to which the initiative is achieving its goals of improving the recruitment, readiness, retention, and completion outcomes of students in Massachusetts community college STEM programs. Like any public policy initiative, SSA will be assessed by the extent to which it moves participants forward. It is essential that the outcome analyses completed through this evaluation provide evidence that is as rigorous, credible, and defensible as possible. Thus, the evaluation team will focus significant resources on data management, analysis, and reporting of outcome data in Year 4. At the same time, this plan maintains sufficient focus on qualitative data collection and analysis to ensure that stakeholders have the context they need to interpret quantitative findings and understand how SSA programs impact student performance and outcomes.

The evaluation team will continue its efforts to align measurement activities with the outcomes and metrics outlined in the SSA Model. Evaluation strategies will continue to be focused on initiative-level measurement while also responding to campus feedback about the local relevance of various evaluation activities. This reflects DHE's and sites' interest in using data both to guide understanding of the initiative-wide impacts on students and the STEM pipeline, and to reflect local practices and unique successes.

What follows is a proposed evaluation plan to be carried out in Year 4, the focus of which is analysis of SSA data through Year 3 along with ongoing data collection about activities and outcomes through Year 4. The document is divided into two sections. Section I outlines a proposed work plan for the evaluation in Year 4, foregrounding evaluation products and activities. Section II provides context for this Year 4 work plan, outlining the purpose, goals, and evaluation questions that more generally guide the evaluation of the SSA Initiative.[1]

[1] This work plan focuses on externally visible activities such as instrument development, data collection, and deliverables, but not on internal activities such as methodological planning, database development, data analysis, and project management. Nevertheless, these activities will require a substantially increased effort in Year 4.

I. EVALUATION PRODUCTS AND ACTIVITIES IN YEAR 4

During Year 4, the evaluation will focus on assessing the impact of the SSA initiative on student outcomes and performance in the areas of recruitment, readiness, retention, and completion over the first three years of the initiative. The goal is to provide defensible and credible evidence that will help stakeholders understand and assess the efficacy of the initiative. Greater resources will be dedicated to data analysis in order to generate the level of evidence that corresponds with the best standards for research available (within the limits of the data and budget). A secondary goal of the evaluation is to coherently capture a qualitative depiction of program character at a time of full-initiative implementation. This will not only build understanding of how initiative elements impact students, but will also contribute to distilling and disseminating programmatic learning and promising practices that emerged over the course of the initiative.

In addition to extensive analysis of program activity and outcomes realized through the first three years of the initiative, the evaluation team will continue to collect data relevant to student participation, progress, outcomes, and experiences during Year 4, which will be available to inform program managers and support future analyses. Descriptive analysis of participation data from the Fall and Spring of Year 4 will be included in the Year 4 Preliminary Report. Year 4 student outcome data and summer participation data will not be available in time for the Preliminary Report, so analyses related to those data are beyond the scope of this work plan.

In Year 4 UMDI will continue to work closely with DHE to maximize the utility (and utilization) of all evaluation deliverables. Although the proposed budget and this corresponding scope for Year 4 of the SSA evaluation have not yet been finalized, this document includes proposed evaluation activities for Year 4 based on current agreements with DHE and SSA campus representatives regarding what is desirable.

Products

Before reviewing specific Year 4 evaluation activities—and the overall purpose, goals, and questions that guide UMDI's work—we present an overview of the key products of the evaluation in Year 4.

SSA Impacts: Annual Evaluation Report (Y3) **–** An annual report focusing on data from Year 3 of SSA implementation will prioritize summative and cumulative findings about student progress toward targeted outcomes, including an analysis of the trajectories of the first cohort of SSA participants to have had the opportunity to complete two full academic years at their institutions. The report will include a much more rigorous analysis of supplemental participant data than has been possible to conduct in previous years and will summarize and integrate the findings of data collection from fall 2015 through summer 2016 (supplemented with data from fall 2016, as available). Findings from qualitative data collection and analysis—describing the quality and nature of SSA programs' impacts on students—will supplement quantitative findings, but may be less extensive than in previous reports (depending on the agreed-upon scope and resources of the evaluation). This report will be submitted to DHE by March 1, 2017, contingent upon UMDI receipt of complete data from DHE a full eight weeks prior to that date.

> ***Targeted products or dissemination activities*** – UMDI evaluators will work with DHE to design and adapt the Annual Evaluation Report to meet DHE needs, including the potential development of audience-specific targeted products or dissemination activities.

SSA Experiences: Preliminary Report (Y4) – This report will provide a qualitative and descriptive rendering of SSA implementation in Year 4 of the initiative. It will help stakeholders understand what SSA looks like on the ground, painting a tangible picture of programmatic learning and promising practices. The report will focus on data from Year 4 site visits and interviews, including the perspectives of SSA participants and administrators. This analysis will be supplemented by a descriptive summary of participation data, student experience, and student exit survey data from spring 2017. Quantitative data relevant to participant progress and outcomes will not be available in time for inclusion in this report, but will be available for future analysis.

The timing, content, and scope of this report will depend on an extension of the Year 4 budget timeline or the availability of Year 5 funding. With a timeline extension through the end of September, 2017, this report would be within the scope of this Year 4 work plan and could be submitted to DHE near the end of the granting cycle (September 2017).

Table 1 summarizes anticipated content coverage for each report as well as reporting deadlines.

Table 1: SSA Year 4 Evaluation, Reporting Content Coverage and Timelines

Reporting Activity	STEM Starter Academy Timeline (Academic Terms)							
	Year 3 Implementation (Fall 2015 – Summer 2016)			Year 4 Implementation (Fall 2016 – Summer 2017)			Fall 2017	Winter/ Spring 2018
	Fall	Winter/ Spring	Summer	Fall	Winter/ Spring	Summer		
Annual Evaluation Report (Y3)				→	Mar. 2017			
Preliminary Report (Y4)*							Sept. 2017*	
Annual Evaluation Report (Y4)**							→	Mar. 2018

*The timing, content, and scope of this report depend on an extension of the Year 4 budget timeline or the availability of Year 5 funding.

**This deliverable is anticipated, but beyond the scope of this proposal and would rely on funding into FY 17.

Key: Time period of report content coverage Report Submission

Data Collection Activities

Data collection activities in Year 4 are designed to (1) collect information about the SSA initiative that can contribute to meaningful analysis and learning beyond the close of Year 4 (and outside the scope of this proposal), and (2) support the development of the Preliminary Year 4 Evaluation Report, described above. The data collection activities described below will be tailored (to the extent feasible) to meet the changing needs of SSA. These activities reflect a shift in focus toward the collection and analysis of outcome data and a continued engagement in building and communicating durable learning from the SSA initiative. A proposed timeline for data collection and analysis activities follows these descriptions.

Primary and secondary participant data collection – The core data for Year 4 outcomes analysis come from a combination of data from DHE's HEIRS system (student and institutional) and supplemental data from campuses. These supplemental data identify SSA primary and secondary participants, some elements of their program participation, and certain outcomes. In Year 4, as previously, SSA sites will be asked to provide these data at the conclusion of each term (fall 2016, spring 2017, and summer 2017).

These data allow the tracking of SSA participants' progress and outcomes. These requests will likely include two main components, one for "primary" SSA participants, and one for "secondary" SSA participants. In Year 3, supplemental participant data collection instruments were revised to include measures of developmental mathematics participation and completion, based on feedback from DHE and SSA sites. In Year 4, additional data fields might be added to capture the intensity or "dosage" of students' exposure to various SSA programmatic elements.

UMDI will continue to engage DHE and the SSA working groups to make these data collections as responsive to the needs of those parties and reflective of SSA initiatives as possible.

This Year 4 evaluation work plan includes the *analysis* of Year 3 participant data (see details in Data Analysis section below) and the *collection* of Year 4 supplemental participant data.

Participant Exit Survey – The purpose of the exit survey is to gather information from outgoing or former SSA participants relevant to key metrics of the SSA initiative (e.g., job placement, transfer status, STEM engagement). In Year 3, UMDI worked with DHE and SSA sites to develop an instrument and protocol for gathering data from primary SSA participants who have left their professional or degree programs for any reason, including dropout, transfer, completion, and job placement. Campuses will collect and organize data from their own exiting program participants for reporting. UMDI will then work with DHE to collect the data from each campus and summarize data across campuses. Preliminary data from this instrument will be included in the Year 3 Annual Evaluation Report (if available) and the Year 4 Preliminary Report.

Student Experience Survey – The Student Experience Survey, developed in Year 3, provides a student perspective on SSA programs and initiatives that is comparable across campuses. Data from this instrument will facilitate ongoing program improvement, and will also contribute to an understanding of programmatic elements that affect students' interest and achievement in STEM. Sites will collect and organize data from their own SSA participants for reporting. UMDI will work with DHE to collect the data from each site and to summarize data across sites. Preliminary data from this instrument will be included in the Year 3 Annual Evaluation Report (if available) and the Year 4 Preliminary Report.

Annual Site Reports – All sites will submit a Year 3 Site Report in November 2016. The purpose of the site reports is to gather information from each campus about their activities, impacts, and outcomes from Year 3 of SSA implementation. Site reports will be structured to facilitate cross-campus comparisons and opportunities for collaborative learning, to simplify sharing among project stakeholders, and to understand how campus strategies contribute to student outcomes. This Year 4 evaluation work plan includes the *analysis* of Year 3 Site Report data (for the Year 3 Annual Evaluation Report) and the *development and dissemination* of the Year 4 Site Report instruments. Analysis of Year 4 Site Report data are beyond the scope of this proposal.

The content of these site reports will be divided across two instruments: an online survey and a narrative template, described in greater detail below. The completed versions of these two elements of each institution's individual site report will be combined and lightly edited. All 15 site reports will then be packaged together into a standalone product. A summary analysis of the content of Year 3 Site Reports will be included in the Year 3 Annual Evaluation Report. This analysis will help to identify key practices implemented with SSA funding in Year 3 and provide context for understanding site-level differences in student performance and outcomes.

> ***Online survey –*** The purpose of the online survey is to catalog and assess site-specific components of SSA implementation as they relate to the core elements of the SSA model. The survey will focus on topics that are of greatest interest to DHE, and will primarily be comprised of close-ended items. UMDI will develop the online survey in consultation with DHE and SSA sites.
>
> ***Narrative –*** The purpose of the narrative is to succinctly gather qualitative details from each site about SSA activities, successes and challenges, and student experiences. It will give sites the opportunity to describe their programs, explain the details of activities contained in the closed-ended survey responses, and provide descriptive elements that will add depth and context to the final evaluation report. To minimize administrative burden on sites, the template will reference the planning documents created by DHE and completed by sites and will not overlap in content with the survey portion of the reports. UMDI will work with DHE to develop a template for the narrative portion of the annual site reports.

Phone interviews – Concise (30 minute) phone interviews will be conducted with representatives of all 15 sites during spring 2017. Analysis of these data will be included in the Year 4 Preliminary Report. The purpose of phone interviews will be to gather information from each site about the most promising elements of that site's program model, as well as challenges to and facilitators of successful program implementation.

Site visits – UMDI will visit all 15 sites over the course of Year 4, half during the 2016–17 academic year and half during summer 2017. Site visits typically last about four hours and include three primary data collection activities: interviews with key program administrators and staff, observation of program activities, and brief focus groups with program participants. These activities and their scope will be tailored to meet the needs of the initiative, based on discussions with DHE.

Site visits conducted during Year 4 aim to capture data about SSA sites' strategies and practices at a time of full-initiative implementation. All previous site visits for this evaluation were conducted prior to or concurrent with SSA Model development, most during the first year of SSA implementation and the remaining during a year affected by 9c budget cuts. Data from site visits will be used to contextualize findings about SSA student outcomes based on sites' inputs and activities. Focus group data from site visits provide student perspectives on the effectiveness of various SSA activities and also offer an opportunity to capture student voices that can be featured in reporting and dissemination activities. Reporting on these data will be included in the Year 4 Preliminary Report, as feasible.

DHE interviews – Two interviews will be conducted with DHE personnel to gather feedback on SSA processes and outcomes (December 2016 and August 2017).

Data Analysis

Analysis of progress and outcome data is a priority focus of the evaluation in Year 4. Rigorous, quasi-experimental, matched comparison group designs will be used to draw strong conclusions about the impact of the STEM Starter Academy initiative on student outcomes. Multi-level mixed-effect logistic regression analyses will be conducted to assess the impact of participation on retention and completion/graduation rates—where students are nested within sites. This design will enable strong inferences about the performance of students who participated in the intervention as compared to the expected level of student performance in the absence of the intervention. When possible (i.e., as sample size and other constraints permit) these analyses will be conducted for all students, and for subgroups of interest (e.g., women, Hispanic/Latino).[2]

Students are not randomly assigned to the intervention. Each site has applied their own criteria to assign students to treatment. Therefore, it is likely that there are differences between participating students and non-participating students. These differences could represent a significant threat (i.e., selection bias) to the validity of the study's findings. To reduce these differences substantially, propensity score weighting procedures will be used, thereby improving the validity of the estimates of program impacts. Carefully selected variables will be included in these analyses to minimize the potential for bias. These variables include gender, race/ethnicity, and (when possible) Accuplacer performance.

Descriptive statistics will be used to assess changes in STEM enrollment and program completion rates over time. While the sample does not permit for the application of a quasi-experimental design to assess changes in graduation/program completion rates across the Commonwealth's community college system over time, the results of these descriptive analyses will nonetheless provide very meaningful insight into the impacts of the initiative. These data will be central to presenting a "big picture" system-level view of the initiative's effectiveness and will complement more robust analyses conducted at the individual level.

Data from Year 4 interviews and site visits and Year 3 site reports will be distilled and thematically analyzed for patterns of promising practices, successes, and challenges in program implementation. Descriptive data from student experience surveys and participant exit surveys, as available, will be summarized and analyzed for common themes.

[2] Quasi-experimental analyses that use program completion/graduation as an outcome will include SSA participants from the Fall of 2014 (and a comparison group of similar non-participating students). Analyses that use retention as outcome will include students who participated in SSA between the Fall of 2014 and the Spring of 2016.

UMDI will work with DHE to develop a data-sharing agreement that will facilitate these analyses. The results of these analyses will be a primary focus of UMDI's Year 3 Annual Evaluation Report.

Technical Assistance Activities

Targeted technical assistance – UMDI will continue to provide DHE with targeted technical assistance, including the preparation and dissemination of reporting products (e.g., presentations to the Board of Higher Education and other relevant audiences). Evaluators will participate in DHE SSA planning and review meetings, attend and take notes at SSA grantee meetings, draft instruments for DHE data collection (e.g., annual site report templates), and respond to DHE requests for information or support as feasible and appropriate. This technical assistance does not include intensive site-specific evaluation assistance.

Timelines for Data Collection and Analysis

In Table 2, we present a proposed timeline for data collection and analysis activities to be completed during Year 4. Indicators below the table overlay reporting timelines to illustrate approximately which data might be included in each reporting activity. Technical assistance will be ongoing.

Table 2: Timeline of Proposed Data Collection and Analysis
September 2016 – September 2017

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Data Collection													
Supplemental participant data collection				X						X		X	
Phone interviews							X	X					
Site visits (Interviews, observation, focus group)	X	X	X							X	X	X	
DHE interviews				X								X	
Participant exit survey				X						X		X	
Student experience survey				X						X		X	
Annual Site Reports			X									X	
Data analysis													
Analysis of quantitative student progress and outcomes		X	X	X	X	X	X						
Analysis of interview, site visit, and site report data	X	X	X	X	X	X	X	X	X	X	X	X	X
Analysis of descriptive participant data		X	X	X	X	X	X				X	X	X

Y3 Prelim. Report ↑ ↑ SSA Impacts: Annual Evaluation Report (Y3) SSA Experiences: ↑ Y4 Prelim. Report

II. OVERVIEW OF EVALUATION

Purpose

During Year 4, the evaluation will prioritize analyses that assess the impacts of the SSA initiative on the recruitment, readiness, retention, and completion of SSA participants. The evaluation will also continue to encompass data collection and analysis that informs understandings of why and how SSA initiative practices impact participants' outcomes. Year 4 will be a critical year for dissemination of evaluation findings and the evaluation team will continue its efforts to convey findings to relevant stakeholders (e.g., DHE representatives, campus administrators, program administrators) in concise and salient forms.

The STEM Starter Academy evaluation has multiple purposes. In Year 4, these are to:

1. **Provide summative assessment.** UMDI will provide a robust summative assessment of student performance data and other outcomes of interest (e.g., number of students served, retention rates, graduation rates, certificate or degree completion, transfer to 4-year institutions, workforce entry).
2. **Provide technical assistance**. UMDI will provide technical assistance to DHE and SSA sites through support with reporting and dissemination activities, support for establishing local measurement capacity and systems, development of instruments (e.g., site reports, work plans), participation and note-taking at key meetings, and responses to site-specific inquiries or requests for support.
3. **Provide formative feedback.** UMDI will continue to collect and analyze data that characterize and distinguish STEM Starter Academy programs to help inform an understanding of how and why particular elements impact student performance. These data include details of interventions and activities, the contexts in which activities occur, and student and administrator perspectives on the initiative. The extent of this analysis depends on evaluation scope and resources.

Goals

As the SSA initiative progresses through its fourth year of operation, the overarching goals of the evaluation remain substantially the same, but reflect a pivot toward assessing and communicating outcomes.

- Assist DHE with understanding and communicating clearly 1) the impact of SSA on the quality and efficacy of the STEM pipeline at Massachusetts' community colleges, and 2) emergent understandings of "best practice" for STEM pipeline development at community colleges.
- Assess outcomes and progress towards SSA-initiative goals of recruitment, readiness, retention, and completion. UMDI will work with DHE to collect and analyze individual-level participation and outcome data and—when appropriate—compare these measures to those for other STEM students or the general Massachusetts community college population.
- Characterize the SSA initiative and provide site-specific detail. In Year 4, evaluation strategies will continue to be focused on initiative-level measurement. However, site differences in implementation that are linked to relevant outcomes will be documented to the extent possible based on evaluation scope and resources. Site-level data will continue to be included in reporting materials (likely in appendices).
- Support meaningful future analysis of initiative data through technical assistance to solidify data collection and analysis capacity.

Evaluation Questions

Evaluation of the STEM Starter Academy initiative continues to encompass data collection and analysis to facilitate both process and outcome evaluation. In Year 4, more resources will be required to address outcome-focused questions. Nevertheless, process questions remain relevant to understanding and explaining the contexts

in which effective programs are developed and sustained. Depending on the scope of the evaluation, resources dedicated to process questions may be reduced. The evaluation questions outlined below reflect our current understanding of initiative implementation and available data.

Outcome Evaluation Questions

O1. What progress is being made toward the goals of recruiting, preparing, retaining, and graduating or completing more students from STEM-pathway programs?

O2. Who is participating in SSA activities? Do observed changes in progress and outcomes differ across student characteristics such as gender and race/ethnicity?

O3. To what extent are observed changes in student outcomes attributable to initiative activities (including combinations of program activities) versus contextual variables or non-SSA interventions?[3]

O4. What differences in program features, implementation strategies, and contextual variables can be identified across institutions whose student progress or outcomes differ substantially?[4]

Process Evaluation Questions

P1. What are the major challenges to and facilitators of successful program implementation encountered by grantees? How have challenges been addressed or overcome?

P2. What are the major challenges to and facilitators of advancing SSA implementation and initiative development that have been encountered by DHE? How have challenges been addressed or overcome?

P3. How do key project stakeholders (e.g., SSA students, administrators, coordinators) rate and explain the quality, relevance, and effectiveness of major SSA model components and services?

P4. What infrastructure, systems, and processes are being put in place to aid program sustainability during and beyond the award period? What are the greatest challenges to and supports of creating sustainability?

DRAFT

[3] Although direct attribution to SSA will be difficult to validate, the evaluation will seek to improve stakeholders' understandings of the connection between SSA program activities and student outcomes.

[4] UMDI and DHE agree that addressing Outcome Question 4 is a long term goal which will not be fully addressed through evaluation analysis and reporting activities in Year 4. The evaluation team will continue to work with DHE to collect data that are relevant to this question.

DATA DICTIONARY:
STEM Starter Academy Activity

Primary Participant Collection File

Release 11.0, Summer 2017

LIST OF DATA ELEMENTS

STM001 College ID

An institutional identification code, as assigned by the DHE

STM002 Year (Calendar Year)

The calendar year in which the student participated in any primary STEM Starter Academy activity/event

STM003 Term

The academic term in which the student participated in any primary STEM Starter Academy activity/event

STM004 Student's Social Security Number

The student's social security number

STM005 Student ID

Identification code assigned to the student by the institution

STM006 STEM Starter Academy Aid

Indicates whether or not the student received direct STEM Starter Academy financial support

STM007 Extra Support

Indicates whether or not the student received SSA-related extra support

STM008 STEM Pathway or STEM Career Counseling

Indicates whether or not the student received SSA-related targeted STEM pathway and/or STEM career counseling

STM009 Previously Secondary Participant

Indicates whether or not the student was previously reported as a secondary STEM Starter Academy participant

STM010 Developmental Math Intervention Participant

Indicates whether or not the student participated in a STEM Starter Academy-sponsored developmental math intervention (e.g., developmental math course, non-credit workshop) during the current reporting period (summer 2017).

STM011 Developmental Math Completer

Indicates whether or not the student participated in a STEM Starter Academy-sponsored developmental math intervention (e.g., developmental math course, non-credit workshop) during the current reporting period (summer 2017) and fulfilled all developmental math requirements for your institution by the end of the current reporting period (summer 2017).

STM012 Low-Dose Participant

Indicates whether or not the student participated in fewer than 6 hours of SSA-related activities during the current reporting period (summer 2017).

Massachusetts Board of Higher Education **Data Dictionary**
STEM Starter Academy Activity

STM001 College ID

An institutional identification code assigned by the Data Dictionary Appendix A: Institution Codes

Data Type: Numeric **Length** Minimum 3 Maximum 3 **Format Example** 000

Code Descriptions

See **Data Dictionary Appendix A: Institution Codes**

Definition

Code used to identify each college or university in the Commonwealth of Massachusetts

Instructions

Business Rules	Dependency
Mandatory entry	Must match College's ID as specified in Data Dictionary Appendix A – Institution codes. Every record submitted must be the correct college ID and be the same college ID throughout the entire file.

Massachusetts Board of Higher Education **Data Dictionary**
STEM Starter Academy Activity

STM002 Year (Calendar)

The calendar year in which the student participated in any primary STEM Starter Academy activity/event

Data Type: Numeric **Length** Minimum 4 Maximum 4 **Format Example** YYYY

Code Descriptions

Definition

Instructions

Business Rules	Dependency
Mandatory entry	Each record must be the correct year as chosen when the file is submitted, not be a year previously submitted, and each record must have this same year.

Massachusetts Board of Higher Education **Data Dictionary**
STEM Starter Academy Activity

STM003 Term

The academic term in which the student participated in any primary STEM Starter Academy activity/event

Data Type: Numeric **Length** Minimum 1 Maximum 1 **Format Example** 0

1 Fall
2 Winter
3 Spring
4 Summer

Definition

Select **"Fall"** for STEM Starter Academy activities/events from September through the end of the Fall term.

Select **"Winter"** for STEM Starter Academy activities/events that occur during winter term (or intersession).

Select **"Spring"** for STEM Starter Academy activities/events that occur during the spring term.

Select **"Summer"** for STEM Starter Academy activities/events that occur during the summer. These events/activities typically have a start date of May or June and end in July or August (for a 12-week course). Summer activities may cross over summer sessions.

Instructions

Business Rules	Dependency
Mandatory entry	Must be one of the above values. Each record must be the correct term as chosen when the file is submitted, not be a term/year combination previously submitted, and each record must have this same term.

Massachusetts Board of Higher Education **Data Dictionary**
STEM Starter Academy Activity

STM004 Student's Social Security Number

The student's social security number

Data Type: Numeric (Must include leading zeros) **Length** Minimum 9 Maximum 9 **Format Example** 000000000

Code Descriptions

Definition

Unique identification number assigned by the Federal government to each citizen and permanent resident of the United States

Instructions

Business Rules	Dependency
Mandatory entry If the student does not have a Social Security number, enter 000000000. **DO NOT** enter an identification code assigned by the institution for this item. Institutionally assigned identifiers should only be reported in the Student ID data element.	First three digits must be between 001 and 899 (excluding 666), middle two digits must be between 01 and 99, and last four digits must be 0001 and 9999. .

Massachusetts Board of Higher Education **Data Dictionary**
STEM Starter Academy Activity

STM005 Student ID

Identification code assigned to the student by the institution

Data Type: Alphanumeric **Length** Minimum 1 Maximum 15 **Format Example** 000000000000000

Code Descriptions

Definition

Unique code used by the institution to identify students. Institutions may either use social security numbers for this purpose or an institutionally assigned identifier. Although this practice is allowed, it is not recommended.

Instructions

Business Rules	Dependency
Mandatory entry	Must be unique for each student submitted. Must be > 0 digits and <= 15 digits.

Massachusetts Board of Higher Education **Data Dictionary**
STEM Starter Academy Activity

STM006 STEM Starter Academy Aid

Indicates whether or not the student received direct STEM Starter Academy financial support during the current reporting period (summer 2017).

Data Type: Alphanumeric **Length** Minimum 1 Maximum 1 **Format Example** N

Code Descriptions

Y Yes
N No

Definition

Did the student receive direct (STEM Starter Academy grant subsidized) financial support (e.g., grant, stipend, tuition or fee waiver, etc.) during the current reporting period (summer 2017)?

Instructions

Business Rules	Dependency
Mandatory	Must be one of the values above

Massachusetts Board of Higher Education **Data Dictionary**
STEM Starter Academy Activity

STM007 Extra Support

Indicates whether or not the student received SSA-related extra support during the current reporting period (summer 2017).

Data Type: Alphanumeric **Length** Minimum 1 Maximum 1 **Format Example** N

Code Descriptions

Y Yes
N No

Definition

Did the student receive SSA-related extra or targeted supports (e.g., academic tutoring, peer mentoring, etc.) during the current reporting period (summer 2017)?

Note: To be SSA-related, the extra support should either be:

a) Funded at least in part by the SSA grant, or
b) Received by students as part of their participation in an SSA program or activity (regardless of whether the support itself was SSA-funded).

Instructions

Business Rules	Dependency
Mandatory	Must be one of the values above

STM008 STEM Pathway and/or STEM Career Counseling

Indicates whether or not the student received SSA-related targeted STEM pathway and/or STEM career counseling during the current reporting period (summer 2017).

Data Type: Alphanumeric **Length** Minimum 1 Maximum 1 **Format Example** N

Code Descriptions

Y Yes
N No

Definition

Did the student receive SSA-related targeted STEM pathway and/or STEM career counseling during the current reporting period (summer 2017)?

Note: To be SSA-related, this support should either be:

a) Funded at least in part by the SSA grant, or
b) Received by students as part of their participation in an SSA program or activity (regardless of whether the support itself was SSA-funded).

Instructions

Business Rules	Dependency
Mandatory	Must be one of the values above

Massachusetts Board of Higher Education **Data Dictionary**
STEM Starter Academy Activity

STM009 Previously Secondary Participant

Indicates whether or not the student was previously included in the count of *secondary* STEM Starter Academy participants reported by your college (in spring, summer, or fall of 2014; spring, summer, or fall of 2015; spring, summer, or fall of 2016; or spring of 2017), and not previously reported as a *primary* participant.

Data Type: Numeric **Length** Minimum 1 Maximum 1 **Format Example** 1

Code Descriptions

1 Yes
2 No
3 Unknown

Definition

Was the student previously included in the count of secondary STEM Starter Academy participants reported by your college (spring, summer, or fall of 2014; spring, summer, or fall of 2015; spring, summer, or fall of 2016; or spring of 2017), and not previously reported as a primary participant?

Instructions

Business Rules	Dependency
Mandatory	Must be one of the values above

STM010 Developmental Math Intervention Participant

Indicates whether or not the student participated in a STEM Starter Academy-sponsored developmental math intervention (e.g., developmental math course, non-credit workshop) during the current reporting period (summer 2017).

Data Type: Numeric **Length** Minimum 1 Maximum 1 **Format Example** 1

Code Descriptions

Y Yes
N No

Definition

Did the student participate in a STEM Starter Academy-sponsored developmental math intervention (e.g., developmental math course, non-credit workshop) during the current reporting period (summer 2017)?

Instructions

Business Rules	Dependency
Mandatory	Must be one of the values above

Massachusetts Board of Higher Education **Data Dictionary**
STEM Starter Academy Activity

STM011 Developmental Math Completer

Indicates whether or not the student participated in a STEM Starter Academy-sponsored developmental math intervention (e.g., developmental math course, non-credit workshop) during the current reporting period (summer 2017) and fulfilled all developmental math requirements for your institution by the end of the current reporting period (summer 2017).

Data Type: Numeric **Length** Minimum 1 Maximum 1 **Format Example** 1

Code Descriptions

Y Yes
N No

Definition

Did the student participate in one or more STEM Starter Academy-sponsored developmental math interventions (e.g., developmental math course, non-credit workshop) during the current reporting period (summer 2017) and fulfill all developmental math requirements for your institution by the end of the current reporting period (summer 2017)?

A student who has fulfilled all developmental math requirements for your institution is eligible to participate in degree-credit-bearing math courses.

Instructions

Business Rules	Dependency
Mandatory	Must be one of the values above

Massachusetts Board of Higher Education **Data Dictionary**
STEM Starter Academy Activity

STM012 Low-Dose Participant

Indicates whether or not the student participated in fewer than 6 hours of SSA-related activities during the current reporting period (summer 2017).

Data Type: Numeric **Length** Minimum 1 Maximum 1 **Format Example** 1

Code Descriptions

1 Yes
2 No

Definition

Did the student participate **fewer than 6 hours** of SSA-related activity during the current reporting period (summer 2017)?

Note: To be SSA-related, this support should either be:

a) Funded at least in part by the SSA grant, or
b) Received by students as part of their participation in an SSA program or activity (regardless of whether the support itself was SSA-funded).

Instructions

Business Rules	Dependency
Mandatory	Must be one of the values above

College Level Data	
Name of your Community College:	

Secondary STEM Starter Academy Activities/Events and Participants Summer 2017:	
Secondary events/activities target potential students who are not currently enrolled at a community college.	
How many TOTAL secondary STEM Starter Academy grant supported events/activities* were held [e.g., recruiting at local high schools or community centers, organized campus programs or recruiting visits] from the end of Spring 2017 to the beginning of Fall 2017?	
How many TOTAL participants* took part in secondary STEM Starter Academy events/activities from the end of Spring 2017 to the beginning of Fall 2017?	

* Activities such as emails or paper mailings should be counted as "events/activities" but the recipients should not be counted under "participants."

STEM Starter Academy Participant Exit Survey

Name of Community College is interested in hearing from students about their experiences in science, technology, engineering, and mathematics (STEM) professional or degree programs. **The online survey will take about 5 minutes to complete.**

Your participation is completely voluntary and you may refuse to participate without penalty. Your choice to participate or not will not impact your grades or your status with the college.

Your responses will be used to help inform administrators at Name of Community College about the climate of its STEM programs as well as to inform state-level administrators about Massachusetts community college STEM programs more generally.

Any data you provide in this survey will be kept confidential unless disclosure is required by law. Your answers to the questions in this survey will not impact your grades or your status with the college. In any report we publish, we will not include information that will make it possible to identify you or any individual participant. The responses you provide will be kept by either the SSA coordinator or by the Institutional Research office at your campus.

We thank you for taking time out of your busy schedule to complete this survey. If you have any questions about this project, please feel free to contact us either by e-mail [email] or telephone [phone].

Sincerely,

Name of contact

If you DO want to participate, please check *I AGREE TO PARTICIPATE* at the bottom of this page, print or save a copy of this letter for your records, and proceed to the survey.

If you DO NOT want to participate, please stop now and do not proceed to the survey.

By checking the box below and participating in the survey, I acknowledge that I have read and understood the above information and agree to participate in this program evaluation project.

☐ I agree to participate >> continue to survey

STEM Starter Academy Participant Exit Survey Spring 2017

1. Why did you leave Name of Community College? (Check all that apply.)

Academic

- ☐ Completed or graduated from my program
- ☐ Change of interest or goals
- ☐ Challenging academic workload
- ☐ Grades below my expectations
- ☐ Grades below Name of Community College's expectations
- ☐ Returned to high school
- ☐ Transferred to another college or university (please specify):

Personal/Financial

- ☐ Financial concerns
- ☐ Personal/family concerns
- ☐ Moved out of the area
- ☐ Conflict between job and studies
- ☐ Accepted a job

Scheduling/Logistics

- ☐ Transportation concerns
- ☐ Scheduling concerns

Other

- ☐ Other (please specify):

2. What are you doing or plan to do now that you have left Name of Community College? (Check all that apply.)

- ☐ Start/return to work in a STEM field
- ☐ Start/return to work in a non-STEM field
- ☐ Transfer to another community college as a STEM major
- ☐ Transfer to another community college as a non-STEM major
- ☐ Transfer to a four-year college or university as a STEM major
- ☐ Transfer to a four-year college or university as a non-STEM major
- ☐ Return to Name of Community College at a later date as a STEM major
- ☐ Return to Name of Community College at a later date as a non-STEM major
- ☐ Return to high school
- ☐ Go into military service
- ☐ Other (please specify):

3. Name: _____ Student ID #: _____

We are collecting your name and your student ID number so that we can link your responses to your academic experiences while at Name of Community College. Your individual responses to this survey will not be shared with teachers or administrators and will not impact your grades or your status with the college in any way.

Thank you for taking the time to complete this survey. The information you have provided will be used to help guide the college and the state as they seek to improve STEM educational experiences for all students. If you have any questions about this survey, you can contact Name of contact, [email; phone].

Interview Protocol for SSA Coordinators and/or Administrators – Spring 2017 (30 minutes)

General Information

Interviewee: **Position:**

Community College: **Date/Time:**

Phone Number:

Introduction [5 minutes]

- Thank you for taking the time to speak with me today. The purpose of this interview is to learn more about what you see as the most promising practices emerging from your institution's SSA programming and activities. I'll also ask you about challenges you have faced and facilitators of successful program implementation.
- Just to confirm: we're scheduled from ____ to ____ today – does that still work for you?
- As with all of our interviews so far, we will be sharing the findings from this interview with DHE and possibly other higher education institutions, in addition to including the findings in our reports. Since there are a limited number of SSA sites, we will be unable to report information about your program in a completely confidential manner. However, in the event that you would prefer for a particular response to remain confidential, please let me know, and I will honor your preference for confidentiality.
- (Ask for permission to use recorder before starting the recorder and after.)

INTERVIEW QUESTIONS

Promising Practices [15 minutes]

1. As you know, the SSA model goals laid out in year 2 are:
    - to increase the number of STEM graduates and certificate holders produced by the community colleges and transfer to a 4-year university or obtain STEM employment, and
    - To increase the number of students entering STEM programs at the community colleges

    a. Of these goals, where do you think your SSA programming is having the greatest impact? On which students do you feel you are having the greatest impact?

    b. Based on previous data we've collected from you, I have a list of SSA-affiliated practices or strategies that I think you consider to be the most promising to emerge from SSA at your institution for achieving these goals. After I review this list, please let me know if it accurately captures what you see as the most promising strategies at your site.

    c. As you look back from this mid-Year 4 vantage point, does this list capture what you see as the most promising strategies (and the students served) to emerge from your SSA implementation? If not, how would you change this list?

2. What **lessons have you learned** developing these practices that you could share with other sites interested in implementing these kinds of strategies?

    a. Are there any particular factors that have facilitated your success?

    b. [if not already addressed] How do you feel that the way SSA is structured, administratively, at your site has facilitated or hindered programmatic success?

3. Based on what you've reported to us, we understand that you are collecting data that will help to demonstrate your successes with these practices and that you use to inform your strategies, specifically:

    a. Is that correct? Is there any other data collection you're doing that you'd like to add?

    b. How have your strategies and capabilities for collecting, reporting, and using data shifted over the course of SSA implementation?

Challenges [5 minutes]

4. According to [Year 3 site report, Fall site visit, Spring 2016 interviews], these are the challenges we understand you are facing in terms of implementing or coordinating your SSA programs and activities:

    a. In Year 4, have you faced any new challenges or made progress on resolving any of these challenges? How so?

Looking forward & closing thoughts [5 minutes]

5. What does the future of SSA look like at your institution?

6. Is there anything else you would like to add about the SSA implementation in general or about this evaluation process?

Thank you for taking the time to talk with me today.

STEM Starter Academy – Selected site visits – Year 4

Observation Protocol – Fall 2016

Cover Page – To Be Completed Before Observation

General information:

College _____ Date _____

Activities observed (*more than one might be observed simultaneously*):

- ☐ STEM credit courses
- ☐ Non-credit or student success courses
- ☐ Boot camps or prep workshops
- ☐ Interest workshops or activities
- ☐ Self-paced/computer-aided classes
- ☐ Cohort activities
- ☐ Students receiving support services
- ☐ Peer mentoring
- ☐ Study groups
- ☐ Enrichment activities (list)
- ☐ Research experiences
- ☐ Internships
- ☐ Online advising or mentoring systems
- ☐ Dual enrollment courses
- ☐ Faculty PD/meeting
- ☐ Clubs
- ☐ Other:

Pre-Observation Summary

- Brief description of SSA program at this site.

SSA Model Areas

- Recruitment:
- Readiness:
- Retention:
- Completion:

Strategies

- Intensive Experiences
- Summer bridge program description, schedule, elements
- STEM engagement
- Integrated support systems
  - Advising, tutoring, financial support
- Building student connections/cohort
- Academic Support
- Career Exploration
- Completion support
  - Transfer focused
  - Workforce focused
- Faculty professional development?
- Academic-year programming and support
  - STEM-specific intrusive advising
  - STEM tutoring
  - Financial support

Site-specific things to look for during the observation:

STEM Starter Academy – Selected Site Visits – Year 4
Observation Protocol – Fall 2016

Notes:

- The goals of this observation are to:
  - Develop a deeper understanding of how SSA programs are impacting students
  - Gather the perspectives of campus stakeholders about SSA
  - Collect information about promising programs and practices
  - Capture the character and details of site-specific program implementation in order to offer illustrative examples of the impact of SSA on students in a way that is translatable to external project stakeholders

General

- Briefly summarize the observation in general.
  - What activities were observed (identified on page 1)? For how long was each type of activity observed?
  - What was the purpose of the event being observed?
  - How many people were involved?
    - # of students _____
      - Characteristics (if available) such as grade levels, demographics, etc.?
      - If time allows, ask instructor how many students should have been in attendance.
    - # of staff/administrators _____
      - What were the roles of the staff/administrators observed (e.g. instructor, tutor, advisor, mentor, coach, speaker, administrator, etc.?)
  - In general, what was the level of engagement of the people involved?
  - What was unique and/or particularly interesting about what was observed?
  - What was observed that would be helpful to others who wanted to create a similar program?
  - Did your observations give you any insight into program sustainability? Describe.

Program Dimensions

Describe your observations related to SSA Model elements:

- Target populations/student selection –
- Experiential learning opportunities (including research experiences, experiential curriculum design)
- Career exploration activities and support
  - Support for transition to industry/career
- Support for transition to 4-year colleges
- Cohort model? What is the common experience for SSA students at this institution?
- Faculty professional development?
- Academic-year programming and support
  - STEM-specific intrusive advising
  - STEM tutoring

- Financial support
- Other student support services

Activities and Support

- In what ways does this SSA program provide:
    - Specific or targeted support for student retention?
    - A specific or targeted emphasis on college readiness?
    - A specific or targeted emphasis on STEM career awareness?
    - A specific or targeted emphasis on options for completion (transfer to 4-year colleges, transfer to career with 2-year degree or certificate)?
- What learning activities are observed?
    - What pedagogical strategies are used?
    - Describe participants' engagement in the activities.
    - Approximately how many students/staff are in attendance?
- What enrichment or retention-related activities are observed?
    - Describe the activities
    - Approximately how many students/staff are in attendance?
    - Describe participants' engagement in the activities.
- What student supports are observed?
    - Describe the activities
    - Approximately how many students/staff are in attendance
    - Describe participants' engagement in the activities
- What other activities are observed?
    - Describe the activities
    - Approximately how many students/staff are in attendance
    - Describe participants' engagement in the activities
- Resources and support
    - What physical resources are available to students? (e.g., technology, space)
    - What student supports (academic, social, emotional, etc.) are available to students?
- Did you observe anything that suggests student/teacher/administrator successes, challenges, desires, etc.?

Follow-up

- Are there specific things you had hoped to observe but didn't have the opportunity?

- Does this observation leave you with follow up questions? If so, list here:

- Based on this observation, are there specific things we should request to observe at a later date?

SSA Site Visit: Student Interview or Focus Group Questions – Year 4, Fall 2016

Welcome: Thank you for coming to this focus group today. I know you are all busy and your time here is very much appreciated.

Evaluator's Introduction: I work for the UMass Donahue Institute – We are external evaluators who have been hired by the Department of Higher Education to help evaluate the STEM Starter Academy Initiative (which I will refer to as SSA). My goal is to get your feedback on SSA programs.

Explanation of focus group: I would like to hear from as many as you as possible. Don't feel like you have to answer all the questions, but do participate to the extent you are comfortable. It's okay to respond to one another, and it's okay to agree or disagree with one another. It is very likely that you have different experiences. The point here is to get as much of a complete story about SSA – from your unique perspective – as is possible.

Confidentiality: I will include a summary of this discussion in reports I write later this fall and winter. I won't use your names and will not identify you specifically, but I might quote you anonymously. For example, I might write something like, "one student found tutoring to be very helpful. She said, 'sometimes I just need a little bit of help when I'm really stuck. After that, I can usually figure it out.'"

Also, please respect people's privacy once we leave this group. During the group, we may mention faculty and other SSA students by name (their privacy will also be preserved in the report). Our discussion is confidential. Is that clear?

Recording: I will be recording the discussion because it would be impossible for me to accurately write the whole the thing down. I will be transcribing the recording, and one or two of my colleagues will also review the transcript. No other people will hear or see the whole discussion. Does everyone here agree to be recorded?

I will turn on the recorder now and let's start.

I am here with students from _____Community College. This is just a reminder that this conversation is being recorded.

Questions:

1. Let's first go around the room quickly [depending on group size]: tell me if you're participating in a STEM Starter Academy program now or if you have participated in the past, and which programs/activities you participated in.

2. What are the ways that being a part of SSA has helped you?

    a. How do you think your college experience would be different if you had not participated in SSA?

3. What are the best things about the STEM Starter Academy program? Can you give me an example?

4. What do you find the most difficult about the SSA program? Can you give me an example?

5. I'm interested in knowing if participating in SSA has changed any of your ideas about STEM:

    a. Did any of you switch into or switch between STEM majors because of SSA? Has being involved with SSA changed your ideas about STEM majors?

    b. Are any of you considering different job or career possibilities than you were before you participated in SSA? Tell me about that.

    c. Has SSA helped any of you prepare to move on in your career or academic plans? How so?

6. Do people who participate in SSA know each other here? Do you do anything together (e.g., study, have meetings, have classes, etc.)? In what ways is this helpful or not?

7. Some of you might feel that SSA is a good fit for you and some might think it isn't as good a fit – I'm interested in knowing why.

    a. First, for those of you who feel that SSA *is* a good fit for you – can you tell me why?

    b. For those of you who feel like SSA has *not* been a good fit for you – can you tell me why?

8. If you were in charge of this program, what would you change about it? Is there some kind of support that would make your experience better?

9. How do you feel about your access to help when you need it? Who do you turn to for help with career, transfer, or classes?

10. If you were going to tell one of your friends about the STEM Starter Academy program here – how would you describe it?

11. Is there anything else you think we should know about the STEM Starter Academy program here?

Specifics to follow up on if not mentioned:

Year 4 STEM Starter Academy Site Visit Administrator Interview Protocol (1 hour)

Fall 2016 Site Visits

Draft 9/8/2016

General Information

Interviewee: Position:

Community College: Date/Time:

Pre-interview summary

(Based on previous data: Year 4 plans, Spring 2016 interviews, Year 2 site reports, Year 2 site visit data)

Brief description of SSA implementation at this site:

Key programmatic elements of implementation strategy at this school:

- Target populations and strategies for recruiting under-represented groups -
- Summer bridge program -
- Academic year programming and support -
- Experiential learning opportunities -
- Career exploration activities and support -
- Support for transition to 4-year institution -
- Faculty professional development -
- Cohort model? -
- Other -

Key successes:

Key challenges:

Unique features:

Site-specific follow-up questions:

Introduction [5 minutes]

- Thank you for taking the time to speak with me today.
- This interview will focus on your Year Four SSA activities. The purposes of this interview are
  - to understand the key elements of SSA at your institution in Year 4;
  - to capture your reflections on the successes and challenges of SSA implementation looking both backward; and, forward from the current moment; and,
  - to describe the SSA practices or strategies that are having the most success at your site.
- We understand that you are also in the process of preparing your Year 3 site report and there are some questions here that may seem to duplicate the questions in that instrument. However, we see this interview as providing a chance for you to reflect on those activities, and perhaps to explain or describe more than you can in a formal report. Along those lines, we will share findings from this interview with DHE and include what we learn in our reporting. Generally, we try to report on your reflections anonymously. Since there are a limited number of SSA sites, we will be unable to report information about your program in a completely confidential manner. However, in the event that you would prefer for a particular response to remain confidential, please let me know, and we will either not report on it publicly or work to maintain your anonymity in our reporting.
- Ask for permission to record the interview **both before and after turning on the recorder**.

INTERVIEW QUESTIONS

Year 4 Overview **[25 minutes]**

1. Based on your Year 4 plans, here is what we understand your SSA activities or programming will be in Year 4:

   Complete before interview.

   a. Am I missing anything? Or, are there things I need to adjust?

   Probes:
   b. Activities or services for *continuing* SSA students (Students who had started with SSA before Fall)
   c. Activities or services for *new* SSA students [new to SSA program(s)]
   d. Activities or services for Early College students
   e. Probe for activity in model areas;
      i. Recruitment
      ii. Readiness
      iii. Retention
      iv. Completion – both workforce and transfer.

2. We know that fall might not be a time of peak SSA activity at your campus, but would you please tell me which, if any, of those fall activities you consider to be **key elements** of your SSA programming?

3. Your Year 4 plans indicated that you've made the following changes to your SSA plans as you moved into Year 4: _____. Is there anything else you would like to add to that list? Why did you make those changes?

4. Our understanding is that your SSA programs and activities in Year 4 will focus on serving _____ populations. Is that correct? Why do you focus on those populations?

5. Our understanding of how you select your SSA participants is: _____. Is that about right or are we missing something?
    a. What do you see as the characteristics of students who are most and least successful in your SSA programs?
    b. Have your site's SSA activities had any unintended positive outcomes or negative consequences for students? Please describe.

6. We understand that your efforts to address the sustainability of your SSA programs include: _____. Are there other efforts you are making toward increasing the sustainability of your SSA programs that you want to add?
    a. What have been the greatest challenges to your work to enhance the sustainability of SSA programs and activities?
    b. What factors have supported your efforts to enhance the sustainability of SSA programs and activities?

Reflections **[25 minutes]**

7. Are there practices or strategies employed in your SSA programming that have become the signature practices for your SSA program – things you would like your SSA program to be known for? Why? What are they accomplishing?

8. Are there areas of the SSA model, whether recruitment, readiness, retention, or completion, where you feel you are having the most success? What are your most successful practices in those areas?
    a. Could you share a story or example of a student experience that illustrates that success?

9. What evidence would you say best demonstrates the success you are having in your SSA programs?

    Probe:
    a. What feedback about your SSA programs have you received from various stakeholders (including SSA participants, parents, campus administrators, community members, etc.)?

    b. Do you feel that you have sufficient institutional capacity to capture and analyze relevant SSA student performance data?

10. How would you characterize your institution's overall experience with *implementing* SSA at this point? Specifically:
    - What have been the most important facilitators of success? When we spoke in the spring, you mentioned X, X, and X. Is there anything you'd like to add to that list now??
    - What have been the biggest challenges? When we spoke in the spring, you mentioned X, X, and X. Is there anything else you'd like to add to that list now?

11. What, if anything, might you change about your implementation of SSA in the future?

12. What, if anything, about DHE's facilitation of this grant would you like to see done differently in the future?

About today's observations **[5 minutes]**

13. *Ask these questions if the interviewee is familiar with the activities (to be) observed during the visit.*

If interview takes place <u>prior to</u> observation:

Today, we plan to observe SSA in action. What specifically will we be observing?

a. To help us understand the program and share its promising practices with DHE and other sites, what do you think are some of the most important things we should be looking for during our observation?

b. Are there major components of your SSA program that we will not observe, or that are difficult to observe but important to understand?

If interview takes place <u>after</u> observation and interviewee was present or is familiar with the activity:

Today, we observed SSA in action here. [*Briefly describe observation*.]

a. To help us understand the program and share its promising practices with DHE and other sites, what do you think were some of the most important things we saw during our observation?

b. Are there additional major components of your SSA program that we did not observe but that you think are important for us to understand?

14. Is there anything else you'd like to add?

Thank you for your time.

STEM Starter Academy – Selected site visits – Year 4

Observation Protocol – Summer 2017

Cover Page – To Be Completed Before Observation

General information:

College _____ Date _____

List activities that are anticipated to be observed:

1.
2.
3.

Pre-Observation Summary

- Brief description of SSA program at this site.

Activities related to SSA Model Areas

- Recruitment:
- Readiness:
- Retention:
- Completion:

Promising Strategies – What is known about this site's SSA activities in these general clusters (identified in Y3 report)?

- Cultivating community and STEM identity among STEM students
- On-campus collaboration to provide integrated STEM-related supports (including involving faculty)
- External collaboration with industry, high schools, four-year schools, and other SSA campuses.
- Bridging experiences that include STEM exploration, college + math readiness
- STEM advising
- Academic support
- Career and transfer readiness and awareness initiatives

Site-specific things to look for during the observation:

STEM Starter Academy – Selected Site Visits – Year 4
Observation Protocol – Summer 2017

The goals of this observation are to:

- Capture the character and details of site-specific program implementation in order to:
  - offer accessible, illustrative examples of the impact of SSA on students to external project stakeholders, and
  - identify program features, strategies, and contextual variables that may contribute to institutional differences in student progress and outcomes
- Develop a deeper understanding of how SSA programs are impacting different groups of SSA participants
- Collect information about promising programs and practices—including access to and utilization of SSA data
- Gather the perspectives of campus stakeholders about the effectiveness of major SSA components or activities

General Notes:

- Briefly summarize the observation in general.
  - What activities were observed (identified on page 1)? For how long was each type of activity observed?
  - What was the purpose of the event being observed?
  - How many people were involved?
    - # of students _____
      - Characteristics (if available) such as grade levels, demographics, etc.?
      - If time allows, ask instructor how many students should have been in attendance.
    - # of staff/administrators _____
      - What were the roles of the staff/administrators observed (e.g. instructor, tutor, advisor, mentor, coach, speaker, administrator, etc.?)
  - In general, what was the level of engagement of the people involved?
  - What was unique and/or particularly interesting about what was observed?
  - What was observed that would be helpful to others who wanted to create a similar program?
  - Did your observations give you any insight into program sustainability? Describe.

Program Dimensions

Describe your observations or learning related to SSA Model areas:

- Recruitment
- Readiness
- Retention
- Completion

Activities and Support (Describe activity-specific observations here)

- What learning activities are observed?
    - What pedagogical strategies are used?
    - Describe participants' engagement in the activities.
    - Approximately how many students/staff are in attendance?
- What enrichment or retention-related activities are observed?
    - Describe the activities
    - Approximately how many students/staff are in attendance?
    - Describe participants' engagement in the activities.
- What student supports are observed?
    - Describe the activities
    - Approximately how many students/staff are in attendance
    - Describe participants' engagement in the activities
- What other activities are observed?
    - Describe the activities
    - Approximately how many students/staff are in attendance
    - Describe participants' engagement in the activities
- Resources and support
    - What physical resources are available to students? (e.g., technology, space)
    - What student supports (academic, social, emotional, etc.) are available to students?
- Did you observe anything that suggests student/teacher/administrator successes, challenges, desires, etc.?

Follow-up

- Are there specific things you had hoped to observe but didn't have the opportunity?

- Does this observation leave you with follow up questions? If so, list here:

- Based on this observation, are there specific things we should request to observe at a later date?

SSA Site Visit: Student Interview or Focus Group Questions – Year 4, Summer 2017

Welcome: Thank you for coming to this focus group today. I know you are all busy and your time here is very much appreciated.

Evaluator's Introduction: I work for the UMass Donahue Institute – We are external evaluators who have been hired by the Department of Higher Education to help evaluate the STEM Starter Academy Initiative (which I will refer to as SSA). My goal is to get your feedback on the programs that SSA supports (at your campus, that includes:).

Explanation of focus group: I would like to hear from as many as you as possible. Don't feel like you have to answer all the questions, but do participate to the extent you are comfortable. It's okay to respond to one another, and it's okay to agree or disagree with one another. It is very likely that you have different experiences. The point here is to get as much of a complete story about SSA—from your unique perspective—as is possible.

Confidentiality: I will include a summary of this discussion in reports I write later this fall and winter. I won't use your names and will not identify you specifically, but I might quote you anonymously. For example, I might write something like, "one student found tutoring to be very helpful. She said, 'sometimes I just need a little bit of help when I'm really stuck. After that, I can usually figure it out.'"

Also, please respect people's privacy once we leave this group. During the group, we may mention faculty and other SSA students by name (their privacy will also be preserved in the report). Our discussion is confidential. Is that clear?

Recording: I will be recording the discussion because it would be impossible for me to accurately write the whole the thing down. I will be transcribing the recording, and one or two of my colleagues will also review the transcript. No other people will hear or see the whole discussion. Does everyone here agree to be recorded?

I will turn on the recorder now and let's start.

I am here with students from _____Community College. This is just a reminder that this conversation is being recorded.

Questions:

1. Let's first go around the room quickly [depending on group size]: tell me if you're participating in a STEM Starter Academy program now or if you have participated in the past, and which programs/activities you participated in.

2. **What are the ways that being a part of SSA has helped you?**

    a. How do you think your college experience would be different if you had not participated in SSA?

3. What are the best things about the STEM Starter Academy program? Can you give me an example?

4. **What do you find the most difficult about the SSA program?** Can you give me an example?

5. I'm interested in knowing if participating in SSA has changed any of your ideas about STEM:

    a. Did any of you switch into or switch between STEM majors because of SSA? Has being involved with SSA changed your ideas about STEM majors?

    b. Are any of you considering different job or career possibilities than you were before you participated in SSA? Tell me about that.

    c. Has SSA helped any of you prepare to move ahead in your career or academic plans? How so?

6. **Do people who participate in SSA know each other here?** Do you do anything together (e.g., study, have meetings, have classes, etc.)? In what ways is this helpful or not?

7. Some of you might feel that SSA is a good fit for you and some might think it isn't as good a fit – I'm interested in knowing why.

    a. First, for those of you who feel that SSA *is* a good fit for you – can you tell me why?

    b. For those of you who feel like SSA has *not* been a good fit for you – can you tell me why?

8. **If you were in charge of this program, what would you change about it?** Is there some kind of support that would make your experience better?

9. **How do you feel about your access to help when you need it?** Who do you turn to for help with career, transfer, or classes?

10. If you were going to tell one of your friends about the STEM Starter Academy program here – how would you describe it?

11. Is there anything else you think we should know about the STEM Starter Academy program here?

Specifics to follow up on if not mentioned:

Year 4 STEM Starter Academy Site Visit Administrator Interview Protocol (1 hour)

Summer 2017 Site Visits

Draft 6/22/17

General Information

Interviewee: Position:

Community College: Date/Time:

Pre-interview summary

(Based on previous data: Year 4 plans, Spring 2017 interviews, Year 3 site reports, previous site visit data)

Brief description of SSA implementation at this site:

Key programmatic elements of implementation strategy at this school:

- Target populations and strategies for recruiting under-represented groups -
- Summer bridge program -
- Academic year programming and support -
- Experiential learning opportunities -
- Career exploration activities and support -
- Support for transition to 4-year institution -
- Faculty professional development -
- Cohort model? -
- Other -

Key successes:

Key challenges:

Unique features:

Site-specific follow-up questions:

Introduction [5 minutes]

- Thank you for taking the time to speak with me today.
- This interview will focus on your Year Four SSA activities. The purposes of this interview are
  - to understand the key elements of SSA at your institution in Year 4;
  - to capture your reflections on the successes and challenges of SSA implementation and;
  - to describe the SSA practices or strategies that are having the most success at your site.
- We will share findings from this interview with DHE and include what we learn in our reporting. Generally, we try to report on your reflections anonymously. Since there are a limited number of SSA sites, we will be unable to report information about your program in a completely confidential manner. However, if you would prefer for a particular response to remain confidential, please let me know, and we will either not report on it publicly or work to maintain your anonymity in our reporting.
- Ask for permission to record the interview **both before and after turning on the recorder**.

INTERVIEW QUESTIONS

Year 4 Overview [25 minutes]

1. We're more than two-thirds of the way through SSA Year 4.
   a. Based on the data we've collected from you so far, this is how we might broadly characterize SSA at your campus:

      Generate a concise summary before visit including general approach, key elements and signature practices, thoughts about greatest impacts and most successful strategies, populations served.

   b. Would you say that is a reasonably accurate reflection? What would you add or change?

2. At the retreat in May, we talked about subgroups of students who engage in different kinds or different intensities of SSA programming and how we might consider measuring different outcomes for those different groups.

   a. On your campus, how would you break down your SSA primary participants into groups for which your SSA programming will have different impacts?
   b. What different outcomes do you expect as a result of SSA support for each of those groups?

3. How do you feel about your SSA team's ability to collect and analyze data about your institution's SSA students and their outcomes? What kinds of trends are you seeing? Do you need support in analyzing and drawing conclusions from your own campus-level data about SSA? If so, what kind of support?

   a. What data best reflect the success of your SSA programming?

SSA Strategies **[15 minutes]**

4. In our Year 3 Evaluation report, we identified some clusters of strategies that many SSA sites seemed to agree were promising or effective. These clusters included (see visual, last page):
    - Cultivating community and identity among STEM students
    - On-campus collaboration to provide integrated STEM-related supports (including involving faculty)
    - External collaboration with industry, high schools, four-year schools, and other SSA campuses.
    - Bridging experiences that include STEM exploration, college readiness, and math readiness
    - STEM advising
    - Academic support
    - Career and transfer readiness and awareness initiatives

    a. Do you feel that this list captures the strategies that have been "moving the needle" for students at your campus? If not, what would you add or how would you change this list?

    b. Would you prioritize any of these clusters above others?

    c. [if not already answered] Do you feel that your campus has particularly effective and potentially replicable strategies in any one of these clusters? Which cluster? What are those strategies?

Reflections **[10 minutes]**

5. How would you characterize your institution's overall experience with *implementing* SSA at this point? Specifically:
    - What have been the most important facilitators of success? When we spoke in the spring, you mentioned X, X, and X. Is there anything you'd like to add to that list now?
    - What have been the biggest challenges? When we spoke in the spring, you mentioned X, X, and X. Is there anything else you'd like to add to that list now?

6. What lessons from Year 4 are shaping your plans for a potential Year 5 of SSA?

7. What, if anything, about DHE's facilitation of this grant would you like to see done differently in the future?

8. What, if anything, about UMDI's evaluation of this grant would you like to see done differently in the future?

About today's observations **[5 minutes]**

9. *Ask these questions if the interviewee is familiar with the activities (to be) observed during the visit.*

If interview takes place <u>prior to</u> observation:

Today, we plan to observe SSA in action. What specifically will we be observing?

a. To help us understand the program and share its promising practices with DHE and other sites, what do you think are some of the most important things we should be looking for during our observation?

b. Are there major components of your SSA program that we will not observe, or that are difficult to observe but important to understand?

If interview takes place <u>after</u> observation and interviewee was present or is familiar with the activity:

Today, we observed SSA in action here. [*Briefly describe observation*.]

a. To help us understand the program and share its promising practices with DHE and other sites, what do you think were some of the most important things we saw during our observation?

b. Are there additional major components of your SSA program that we did not observe but that you think are important for us to understand?

10. Is there anything else you'd like to add?

Thank you for your time.

SSA Strategy
"Clusters"
Cultivating Community:
STEM Identity and
Connection
External Collaboration:
Industry, HS, four-years
STEM Advising
On-Campus
Collaboration:
Integration, Faculty
Involvement
Career/Transfer
Readiness
Bridging Experiences:
STEM, college, Math
Academic Support

STEM Starter Academy Summer Program Schedules 2017

Institution	Program Name	Start Date	End Date	Daily Schedule	Description	Intended Audience
Berkshire	High School STEM Starter	7/10/2017	7/14/2017	9:00 - 3:00	Daily hands-on STEM activities with college instructors from 9:00-2:00; Monday -Environmental Science; Tuesday-Robotics; Wednesday- Chemistry; Thursday -The Science of Massage; Friday - Engineering. Meet The Professional Speakers Series each day from 2:00-3:00'topic to coordinate with the day's STEM field	Rising High School Juniors & Seniors
	SSA BCC 101	7/24/2017	7/28/2017	9:00-3:00	Daily Bridge to College activities including: 1 credit course BCC101, success skills, college dept speakers, StrengthsQuest Presentation, Moodle, Library Skills, Selfie Scavenger Hunt	Incoming college freshman accetpted into SSA*
	SSA STEM Explore	7/31/2017	8/4/2017	9:00-3:00	Daily hands-on STEM activities with college instructors; Monday-Technology; Tuesday-Physics; Wednesday - Allied Health; Thursday - Envrionmental; Friday TBD Meet The Professional Speakers each day from 2:00-3:00 with topic to coordinate with the day's STEM STEM pathway	Incoming college freshman accepted into SSA but not college ready in math
	SSA Math Workshop	8/7/2017	8/11/2017	9:00-3:00	Daily math instruction with approximately 2 hours of small group instruciton, 2 hours of individualized on-line instrcution, and 2 hours of group math activity	Incoming college freshman accepted into SSA*
	Jump Start Math	6/1/2017	9/1/2017	schedule TBD	approximately ten 12 hour classes using small gorup instruction and indiviudal on-line instruction	Open to all Incoming freshman not ready for college math -
	Career Activities	6/1/2017	9/1/2017	individualized schedules	internships, industry mentors, assessments, resume writing, etc	already enrolled BCC students in SSA
Bristol	BCC - Summer Bridge	6/12/2017	8/18/2017	M-Th: 8 am - 12 pm	Students have the option to take 3 courses for free. College Success Seminar (CSS) 101 , Math Course(2 options) Dev. Math or College Algebra, Science Course (2 options) Dev. Chem or General Biology. Students in the Bridge program pick CSS, 1 math, and 1 science course. This program also includes a STEM Activities on Thursdays.	Incoming freshman to the college who identified interest in a STEM field or GS students with an interest in STEM. Can be traditional or non-traditional students.
	BCC - Learning Communities	6/12/2017	8/18/2017	M-W or T-Th 4 pm - 7 pm	Students can take two courses for free: College Success Seminar & Developmental Math . This program is offered at three of our college locations, Fall River, New Bedford, and Attleboro	Incoming freshman and current BCC students with an interest in STEM and who need to take a Developmental Math course to get on track.
	BCC - STEM Boot Camp	8/21/2017	8/24/2017	M-F: 8:30 am - 4:30 pm	Each day students will participate in hands on STEM workshops lead by BCC Faculty. Proposed program include, Med Tech, Biotech, Environmental and Marine Tech, Electrical Engineering, Mechanical Engineering, and CIS	Incoming students (with a focus on General Studies Students)
	STEM Summer Career Series	6/12/2017	8/18/2017	Exact dates TBD	Through out the summer the STEM program will offer a series of STEM Career Workshops for students. Subjects will include resume writing, cover lettters, interviewing skills, mock interviews, presentation skills, networking, and negotiations.	BCC Summer Bridge students and current BCC STEM Students taking summer courses.
	STEM Tutoring	6/5/2017	8/24/2017	Exact dates and times TBD	The SSA Program will provide 10-12 hours of STEM Drop-In Tutoring for students in STEM math, science, and engineering courses offered during the summer semester.	Current BCC STEM Students
	Lab Techniques Workshop	TBD	TBD	This will be a 1 day workshop	This workshop will provide students with basic lab skills training and discuss career opportunities in the science and biotech industries.	Incoing and current STEM Students
	STEM Early College	6/19/2017	8/17/2017	M/W 5pm-9pm	CAD 101 and CAD 112 courses will be taught at 2 locations - Old Colony Regional and Fall River concurrently	Current high school juniors and seniors (2017)
	STEM Early College	6/26/2017	8/17/2017	T/R 5pm-7:30pm	EGR 151 and EGR 102 courses will be taught at 2 locations - Attleboro and New Bedford concurrently	Current high school juniors and seniors (2017)
BHCC	Developmental/Credit Bearing Math Clusters	6/5/2017	7/27/2017	M-Th: 9 am -12 pm	Developmental math clustered with a college credit bearing math class (both 099/194): two sections running the same time	Current BHCC students who placed into developmental math and have interest in STEM
	Developmental/Credit Bearing Math Cluster	6/26/2017	8/17/2016	M-Th: 9 am -12 pm	One developmenta math clustered with a college credit bearing math class (099/194)	Students transitioning into BHCC in the fall who placed into developmental math and have interest in STEM
	Science workshops	8/28/2017	8/30/2017	9 am - 2:30 pm	Three 3-day workshops on engineering, computer science, and biology for students to learn science study skills and lab skills.	Current BHCC students who took the math clusters over the summer, as well as other interested BHCC students who have not yet taken a science course at BHCC.
	New Computer Careers Workshop	8/28/2017?	8/28/2017?	9 am-2:30 pm	A seminar/workshop on "Careers in IT." Faculty has yet to be confirmed for this workshop, so date is tentative.	Incoming or currentstudents interested in IT but not sure which degree or certificate to pursue
Cape Cod	Summer of STEM Scholarship	5/22/2017	8/24/2017	Daily schedule will vary depending on course program and current progress.	Working with the STEM advisor, students who are interested in taking summer courses to increase their college credits and move towards degress completion will choose a math or science course in the their program; courses are offered in Summer 1 or Summer II session. Students must be currently enrolled in a STEM program and on a path to graduation in Fall 2017 or Spring 2018, and they must continue to meet with the STEM Advisor	Current community college STEM students
	Summer Bridge (Math courses and COL 101)	7/10/2017	8/24/2017	Daily schedule will vary depending on math placement. All students will also take a three-credit COL 101-Success in STEM T,W: 1pm-4pm, July 10-August 25	The Summer Bridge Program has multiple components: a $500 stipend during the summer, a scholarship to cover a mathematics course at the student's level, a three-credit college experience seminar, and the possibility of a stipend at the end of the program if students enroll full-time in Fall 2017. Students must be graduating high school seniors interested in a STEM program. As students receive a scholarship for a mathematics course in their program as determined by a placement exam, this is an individualized approach that meets both the academic and developmental needs of each student as it provides “just right” math instruction and the college experience. Working with the STEM advisor, students will choose a mathematics course that is required in their program and the support through the introductory college experience seminar in order to start them on a STEM track; courses will be during Summer II. Students also earn course credit through this option, 3 or 4 credits for the mathematics course and 3 credit for the college experience seminar, jumpstarting their credit earnings as well as preparing them for the next credit-bearing math course in Fall 2017. The introductory college experience seminar, COL 101-Success in STEM, is also in Summer I, and instruction focuses on: student success strategies; how to navigate community college, transfer, and carreer; career exploration in STEM; and community building at the college.	Incoming STEM students, specifically students who have just graduated high school and who are beginning a STEM program at CCCC.
	MAT 175 Dual Enrollment	7/10/2017	8/24/2017	T,W, Th: 1pm - 4 pm	MAT 175 is a college level mathematics course, designed to prepare college students for calculus and required mathematics courses in engineering. This is specifcally offered to high school students, rising juniors and seniors, who will be part of the Early College SSA programming, which includes engineering coursework in early fall 2017	High school students, rising juniors and seniors interested in STEM pathways and careers
	MAT 175 co-requisite	7/10/2017	8/24/2017	T, W, Th, 4pm-5:30pm	To support students for success in MAT 175, we are offering a co-requisite course. A facutly member will visit MAT 175, serving as a supplementatl instructor or tutor during the course, and then provide sutdnet support outside the course as well.	High school students, rising juniors and seniors interested in STEM pathways and careers
	Summer Statistics Workshop	8/16/2017	8/16/2017	11 am - 3 pm	This one day workshop will be taught by mathematics and statistics faculty at CCCC and support teacher mathematics learning. The workshop will also support teacher understanding of college program and pathways.	Middle school and high school mathematics teachers
	STEM Starter Academy Classes	7/12/2017	8/29/2017	MTWR 4:10PM-700PM	BIO 104: Natural History (4cr)	
		7/12/2017	8/29/2017	TWR 5:00PM-8:30PM	BIO 126: Biology 1: Introduction to Cellular and Molecular Biology (4cr)	
		7/12/2017	8/29/2017	MTWR 1:30PM-4:25PM	EGR 105: Introduction to Engineering Science, Technology and Society (4cr)	
		7/12/2017	8/29/2017	MTWR 1:30PM-4:25PM	EGR 114: Numerical Computing for Engineers and Scientists using Mathematic (3cr)	
		7/17/2017	7/24/2017	MTWRF 9:00AM-12:05PM	REE 124: Energy Conservation and Efficiency (1cr)	
		7/12/2017	8/29/2017	MTWR 8:00AM-10:30AM	SCI 141: Consmic Life Becomes You: Scientific Literacy for Today (4cr)	
		7/12/2017	8/29/2017	TR 9:00AM-12:00PM	MAT 095: Introductory Algebra (Not for credit)	
		7/12/2017	8/29/2017	MTWR 9:00AM-11:00AM	MAT 096: Intermediate Algebra (Not for credit)	
		7/12/2017	8/29/2017	MTWR 9:00AM-11:00AM	MAT 107: College Algebra (4cr)	
		7/12/2017	8/29/2017	MTWR 9:00AM-11:00AM	MAT 108: Precalculus (4cr)	
	opening and closing	7/10/2017		10AM-3PM	**Orientation (required)**	**SSA Participants**
		8/18/2017		12PM-1PM	**Closing Luncheon (required)**: Exit surveys, visit with admissions/financial aid to discuss matriculation	
	STEM Starter Academy Summer Workshops (Pick 2 or more)	7/12/2017	8/29/2017	12PM-1PM, 3PM-4PM	**Summer workshop -Academic Fluency:** Test taking skills, Time Management, Reading for Meaning, Note taking	**SSA students** Students are encouraged to attend as many workshops as they can fit into their schedule, but are **required** to attend **2**
					Summer workshop - Career Exploration in STEM: Title III Computer softwear career exploration; CareerCruising	
					Summer workshop - STEM Scholar Peer Mentorship: (SSA Participants and GCC STEM Club)	
					Summer workshop - Resume Building	
					Summer workshop - Tools for Communication (Library): Scientific Literacy, How Scientists Communicate, Data Communication, Visual Communication	
	STEM Starter Academy: Additional STEM Based Enrichment Activities					
	Premiere STEM Events (Required 1 of 2)	7/26/2017		W 12PM-1PM	**Premiere Event: GCC Alumni in STEM Panel: Pursuing STEM education and careers (required)** **Panelists:** Jared Woods - Renewable Energy, Elizabeth Danielle - Biochemistry, Cancer Research, Erik Risinger - Computer softwear engineer, Noelani Roy - Lab Practices Consulting / Chemist, **Potential Panelists:** Scott Russel - GIS/CAD, Environmental Science, Jennifer Albertine - Plant Ecophysiologist, Cecily Santiago - Mathmatician	**SSA Students** **GCC Summer Session 2 Students** **Faculty/staff** **Surrounding community**
		8/9/2017			**Premiere Event: Brian Adams** Emeritus Faculty, Environmental Scientist and Author of 3 young adult fictional books with a focus on science	
	Additional Requirements	TBD		HALF DAY	**UMASS Amherst STEM Tour** Visit to various STEM labs, example: Chem, Bio, Engineering, Soil Sci	**SSA Participants**
		7/12/2017	8/29/2017	TR 11AM-1PM	1 Hour a week of REQUIRED Math Studio time for students enrolled in a math course	
		TBD		TBD	**Required 2 hours of Community Service Activities:** GCC Outdoor Learning Lab, GCC Food Pantry Project, GCC Herbarium Procurement and Preperation Project, GCC Art Project, GCC - Northfield Public Library Elementary student STEM Education	
		7/12/2017	8/29/2017	0PM-1:00PM, or W 3:00PM-4	**Weekly Advising/Check-in Meetings** Meeting with STEM Special Program Coordinator - Alysha Putnam	

STEM Starter Academy Summer Program Schedules 2017

Institution	Program Name	Start Date	End Date	Daily Schedule	Description	Intended Audience
HCC	STEM Summer Academy	7/10/2017	8/10/2017	SEM 130: MTW 8:30 - 12:00pm; R 8:30 - 1:30 pm; MTH 085: MTW 1:00 - 4:20pm	The STEM Summer Academy offers two STEM Foundations courses and a Developmental Mathematics course to promote interest and support retention in STEM disciplines. The 4-credit courses are oriented to support the development of scientific literacy skills, critical thinking and problem solving in laboratory and real-life settings.	
Massasoit	STEM Starter Academy	7/24/2017	8/25/2017	9AM-2PM	Free math class plus STEM exploration/preparedness work. This program is the earliest on-ramp to the Massasoit STEM program. Includes advising, college preparedness and a research experience with other MCC students. Free lunch with lunchtime speakers and seminars.	Students who will attend Massasoit in the fall semester
	Research Internships (year-round)	5/14/2017	9/1/2017	9AM-4PM	Paid internship that involves intense training and mentoring. This is a year-round opportunity and requires that students meet criteria for participation. Posted dates are for the summer phase which allows up to 30 hours per week. During Fall and Spring the interns work 10 hours/week.	MCC students that have applied and been accepted into the program
	Brockton Early College STEM Pathways Program	7/10/2017	8/10/2017	9AM-1PM	Brockton High students will receive a free, four-credit Biology or Chemistry course as dual-enrollment students. Extra tutoring and STEM enrichment will be provided. Program includes free lunch with lunchtime speakers/seminars.	Brockton High rising juniors and seniors.
MassBay	iCREAT- *Make a Robot this Summer*	6/26/17	7/21/16	M-Th: 9:00 am - 2:00 pm	Three credit, college-level, interdisciplinary, robotic-based course where students will engage in project-based work and receive an introduction to coding, robotics, electronics and technology. Students will build a functional robotic-based system as their final team project.	High school rising juniors and seniors and recently graduated seniors
	STEM Summer Bridge Program for High School students	7/10/07	7/20/17	M-Th: 9:00 am - 3:30 pm	A series of four 2-day workshops for all high school students. Workshops include: Artbotics using the Arduino micro-controller, Ardublock and Arduino Sketch; Wearables with the Lilypad protosnap and Ardublock; 3-D printing a light diffuser using TinkerCad or BlocksCad; Raspberry Pi Coding with Python in Minecraft.	High school freshman, sophomores, juniors, seniors and recently graduated seniors. Priority given to rising and graduated seniors
	STEM Middle School Summer Program	7/10/17	7/21/17	M-F: 9:00 am - 3:30 pm	STEM Summer allows students to explore a common theme through Chemistry, Biology, Mathematics, Physics, Computer Science and Engineering. The morning is spent in a hands-on academic setting. In the afternoon, students work in groups to create a three-dimensional representation of what they learned in the morning. This year's theme is the Human Body, where students will explore the body's different systems learning elements of biology and anatomy in creative ways. STEM Starter Academy will fund two MassBay STEM students to serve as student assistants and one MassBay STEM student to serve as a program guide.	Rising 7th and 8th graders
	STEM Starter Academy Summer Program	8/21/17	9/1/17	M-F: 9:00 am - 1:00 pm	Free, stipended, two-week program designed to give students an intensive math review and to acclimate them to the STEM Division programs, faculty and students before they begin their STEM degree program at MassBay in the fall. Students will receive three hours of math review each day and one hour of other programming which will include college readiness programs, career development workshops and hands-on STEM activities. Program will be taught on our Wellesley Hills campus.	Students enrolled in a STEM program at MassBay in fall 2017. Includes: recently graduated high school seniors, adult learners, community college students new to STEM
	Achievement in Math (AIM)	8/21/17	9/1/17	M-F: 9:00 am - 1:00 pm	Free, two-week refresher workshop that helps non-STEM students enhance their basic math skills and prepare for the Math Accuplacer Test. Students will learn strategies and review topics based on the problem areas identified by previous Accuplacer test scores. Students will also learn about helpful resources and make connections to students, faculty and staff that will improve their college experience. The program will be taught on our Framingham campus.	Students enrolled in any non-STEM major at MassBay in fall 2017. Includes: recently graduated high school seniors and adult learners
Middlesex	Math Booster	5/23/2017	6/29/2017	T-Th: 9 am-12 pm	The Math Booster is a free accelerated developmental "3-credit" math course that provides MCC students the opportunity to develop math skills to be successful in STEM/Health majors. Participating students are provided extensive academic support. This program helps students prepare for college-level mathematics at MCC and beyond.	Current MCC students
	Summer Bridge	6/5/2017	6/16/2017	M-F: 9 am - 1 pm	The Summer Bridge is an introduction and preparation program for incoming or 1st-year MCC students interested in Science, Technology, Engineering, Mathematics (STEM) & Health disciplines for successful completion of certificates/degrees in these fields. This Summer Bridge is a free, two-week program to explore Health & STEM lab skills in an effort to find their passion. Students will develop critical thinking skills through tackling a "wicked problem in STEM", develop course success skills, become familiar with MCC and its resources, connect participants to peer mentors, and gain insight into successful career outcomes.	Majority of summer program participants will be new MCC students and current MCC students (with less than 24 credits) (can also be dual enrolled student, adult learners). Current high school students may also participate.
	2 to 4 Transfer Bridge	TBC		various days & times throughout Summer	PWC SSA is collaborating with UML to provide a 2 to 4 year Transfer Bridge Program that includes a few hands-on academic workshops that allow students to explore and experience UML programs/courses taught by UML faculty in UML facilities during this one-week, non-credit opportunity. Students who successfully complete of one of these academic programs will be given the opportunity to take a free for-credit STEM courses at UML (with extensive wrap-around support services design to prepare and help MCC students more seamlessly transition to UML) based on transfer requirements in their field of study. The goal of this program is also to better align our STEM curricula and enhance transfer student success. Possible Enginnering and Physics course to be offered.	Current MCC STEM students
	High School Math Booster	6/26/2017	8/3/2017	M-Th: 9am - 12:30pm	The High School Math Booster is a free five-week accelerated developmental math program that provides first, second, and third year High School students the opportunity to develop math skills. Participating students are provided extensive academic support. This program helps students review, practice, and get ahead in math.	9th-11th grade High School students
	Peer Achievement Mentor Program	6/1/2017	8/7/2017	M-F: 9 am - 1 pm	The Peer Achievement Mentor program seeks to foster strong and more diverse connections by matching STEM & Health students with Peer Achievement Mentors who are seasoned and successful MCC students. Mentees of the program will gain a sense of belonging at MCC and have additional academic and social support through their mentors.	Summer program participants & current MCC students
	STEM & Health Tutoring	6/1/2017	8/31/2017	various days & times throughout Summer	The STEM & Health Tutoring is a collaboration with the Academic Center for Enrichment and will provide MCC students academic tutoring support & facilitated study groups for various STEM & Health classes during the Summer sessions.	Current MCC students
	STEM & Health Summer Internships & REUs	6/1/2017	8/15/2017	25 hours/week	STEM & Health summer internships & Research Experience for Undergraduates (REUs) provide STEM & Health students an opportunity during the summer to participate in innovative research at 4-year universities or local STEM/Health companies, build laboratory skills, and gain practical experience in their field.	Current MCC students
MWCC	STEM Starter Academy	7/5/2017	8/17/2017	M-F: 9 am - 3 pm* (Friday attendance may be limited)	Students will take 1 or 2 college-level courses (for example: MAT 096, MAT 162,BIO 113, BIO 199, CIS 127 ,PSY 105 etc.,) Tuition is covered by the SSA. Students also participate in industry- specific field trips, Tutoring, MWCC's Leadership Academy & receive a stipend. Accepted Academy Students are required to attend a three-day orientation prior to the start of academic course work: July 5 - 8	High school graduates matriculating at MWCC in Fall 2017;Current MWCC new-to-STEM majors Capacity for up to 30 students and/or 60 classes
	STEM EARLY COLLEGE PROGRAM (ECP)	7/10/2017	8/17/2017	M-F: 9 am - 3 pm* (Friday attendance may be limited)	Enrolls high school students in FREE college-level STEM (Science, Technology, Engineering, Math) coursework towards STEM-oriented academic pathways Goal: Provide a pipeline for high school students to access STEM college credits Participants will be invited to attend all STEM career related workshops/field trips and academic support sessions in place for Summer 2017 STEM Starter Academy Participants (note: this may become a requirement for STEM ECP students) Accepted ECP students AND a parent/guardian will be required to attend an orientation session: THURSDAY, JUNE 22, 2017, 5:30 – 7:30pm, MWCC Gardner Room 115	Rising High School Seniors AND Juniors (Class of 2018 and 2019) Summer Capacity 41 students / Fall Capacity 46 students
NECC	Algebra, Trigonometry and Calculus Boot Camp	6/26/2017	9/29/2017	M-Th: 9 am - 12 pm	This Spring we tried this blended model where on the first day all students were together to asses where they were in their classes and where help waws needed. The reamining time the faculty will split based on the information gathered the first meeting.	Current community college students, entering 1st year students and possible high school students
	Algebra, Trigonometry and Calculus Boot Camp	7/31/2017	8/3/2017	M-Th: 2 pm - 5 pm	This Spring we tried this blended model where on the first day all students were together to asses where they were in their classes and where help waws needed. The reamining time the faculty will split based on the information gathered the first meeting.	Current community college students, entering 1st year students and possible high school students
	Anatomy & Physiology Boot Camp	6/5/2017	6/16/2017	M-F 8:00 am- 11:00 am	Many students struggle with passing A & P 1 and II. This boot camp will give students the skills necessary to persist into the next higher level course, act as a review for a current course or for the TEAS Test.	Current community college students.
	Summer Bridge Developmental Math and Reading	6/5/2017	6/9/2017	8:30 am - 11:30 am	Offered as a modularized course which will allow the students to focus on skills they need. The students will be ablet to advance as quickly as they can master each skill set. Each student will receive a MyMathLab code which will provide access to the modules, an online text and built in tutorials. Class will be taught by an instructor and an embedded tutor. Students may retest in Accplacer math after the boot camp.	Students with a developmental math placement on the Accuplacer test. Incoming students or high school students will be the focus.
	Engineering Boot Camp	TBD	TBD	12:30 pm - 3:30 pm	Much like our boot camps in Math and CIS, this Engineering Boot Camp is aimed at incoming students to prepare them for the engineering curriculum. Some lectures and hands on projects will be done.	Students with a developmental reading placement on the Accuplacer test. Incoming students or high school students will be the focus.
	CIS Summer Boot Camp	8/28/2017	8/31/2017	TBD	Many students struggle with the C++ course which is required by students in computer science and engineering. Supporting student success in this course is essential in order to achieve graduation and transfer credit.	Current community college students, entering 1st year students and possible high school students
	Admitted STEM Student Event	8/xx/17	8/xx/17	6:00-8:00 pm	Students will have the opportunity to meet with STEM faculty on a one-on-one basis. Current STEM students will also showcase work that they have completed and make connections with new STEM students.	New NECC STEM students
	Technology Academy	7/17/2017	8/3/2017	9 am - 1 pm, M-Th	Middle school and high school students will come to campus 4 days a week for 3 weeks and rotate through as a cohort, classes in Engineering, Math, Science, and Computer Science. They will have the opportunity to learn to use a 3-D printer, analyze a mock crime scene, learn about coding, and other STEM activities.	Rising 7th through 10th graders

STEM Starter Academy Summer Program Schedules 2017

Institution	Program Name	Start Date	End Date	Daily Schedule	Description	Intended Audience
NSCC	Summer Bridge- Lynn	7/6/2017	8/15/2017	T,Th: 4 pm - 5:30 pm W: 4 pm - 7 pm	A First year experience course, contextualized to Computer Science and Engineering, linked with a math bootcamp, gaming boot camp, Precalculus course, or CPS 101 course.	Incoming and current STEM majors
	Early College Lynn	7/6/2017	8/15/2017	T,Th: 4 pm - 5:30 pm W: 4 pm - 7 pm	A First year experience course, contextualized to Computer Science and Engineering, linked with a math bootcamp, gaming boot camp, Precalculus course, or CPS 101 course.	HS students interested in STEM
	Summer Bridge Danvers	7/6/2017	8/15/2017	M.W: 9 am - 12:15 pm optional: 12:30-4:20 pm	A First year experience course, contextualized to Life and Health Sciences linked with either a BIO 108 The Body in Health and Disease or PHL 120 Medical Ethics.	Incoming and current STEM majors
	Early College Danvers	7/6/2017	8/15/2017	M.W: 9 am - 12:15 pm optional: 12:30-4:20 pm	A First year experience course, contextualized to Life and Health Sciences linked with either a BIO 108 The Body in Health and Disease or PHL 120 Medical Ethics.	HS students interested in STEM
	Tutor Linked Courses	5/15/2017	8/15/2017	Varies	Successful peers are assigned to work with students in gateway STEM courses.	STEM students
	STEM open tutoring	5/15/2017	8/15/2017	Varies	Peer and profession tutoring for STEM classes by appointment in the summer.	STEM students
	Peer Mentoring	5/15/2017	8/15/2017	Varies	Successful peers work with current and potential students to make connections strengthening College experience	Current and potential students
	Math Bootcamp Summer Bridge	7/6/2017	8/15/2017	T,Th: 6=8:30 pm	Utilitzing the Accuplacer Diagnostic test, faculty work directly with students to determine areas in need of additional work	Current and potential students
	Gaming Boot camp-summer bridge	7/6/2017	8/15/2017	T,Th: 6=8:30 pm	Students will build up and utilize computer programming skills to make their one working video game	Current and potential students
	Orientation with the STEM personnel	6/1/2017	9/1/2017	Twice per week through summer	Orientations for STEM students coming into fall STEM programs. Meeting peer mentors, connecting with faculty and program administrators.	Incoming STEM students
	Math Bootcamp Early College	7/6/2017	8/15/2017	T,Th: 6=8:30 pm	Utilitzing the Accuplacer Diagnostic test, faculty work directly with students to determine areas in need of additional work	HS students interested in STEM
	Gaming Boot Camp Early College	7/6/2017	8/15/2017	T,Th: 6=8:30 pm	Students will build up and utilize computer programming skills to make their one working video game	HS students interested in STEM
	Math Bootcamp Early College	7/6/2017	8/15/2017	T,Th: 4 pm - 5:30 pm W: 6 pm - 9 pm	Utilitzing the Accuplacer Diagnostic test, faculty work directly with students to determine areas in need of additional work	HS students interested in STEM
	Professional Development Math Fac	TBD- August			Bringing together NSCC math faculty with Lynn public school math teachers to work on curricular alignment as alternative to accuplacer testing.	
	Girls Inc STEM engineering day	TBD- August			Pair middle school girls with Community College STEM students to engage in a bridge-building contest and STEM exploration exercise	Middle school students and current students
QCC	MAT099 Emporium Orientation	6/19/2017	6/19/2017	5:00pm-6:00pm	MAT099 Emporium students will meet the instructor and get an overview of the course and expectations.	STEM Students in the MAT099 Emporium course in Worcester.
	MAT099 Orientation	6/22/2017	6/22/2017	5:00pm-6:00pm	MAT099 students will meet the instructor and get an overview of the course and expectations.	STEM Students in the MAT099 course in Southbridge.
	MAT099 Emporium Course-Worcester Campus	7/6/2017	8/10/2017	8:00am-11:45am	Intermediate Algebra Emporium-3 credits. The QCC developmental math emporium sections transform developmental math education in a way that personalizes the experience for each individual student and promotes acceleration through the developmental math sequence. Utilizing computer based learning, the emporium model is a student-centered, flexible learning environment that is supported in real-time by individualized instruction, interaction and engagement in a computerized math classroom. The students have the opportunity to complete multiple developmental courses in a single semester and have their intermediate progress saved for the next semester. This course covers major topics in the study of Algebra. Students learn to factor polynomials (common factor, grouping, difference of squares and trinomials), perform arithmetic operations on rational expressions and complex fractions, and solve rational quadratic (by factoring and formula) and literal equations. The course also covers applications including the use of the Pythagorean Theorem, understanding the definition of radical expressions, simplifying radical expressions containing numerical and variable radicands, graphing linear equations by graphing and elimination. Technology tools are utilized in this course. All students are required to participate in a unified comprehensive final exam to be administered during final exam week and achieve a C or higher on this exam. (or appropriate placement on the placement exam) in order to move on to the next level of math courses.	Current QCC students in a STEM major & new fall 2017 QCC students registered in a STEM major.
	MAT099 Course-Southbridge Campus	7/6/2017	8/10/2017	8:00am-11:45am	Intermediate Algebra - 3 credits. This course covers major topics in the study of Algebra. Students learn to factor polynomials (common factor, grouping, difference of squares and trinomials), perform arithmetic operations on rational expressions and complex fractions, and solve rational quadratic (by factoring and formula) and literal equations. The course also covers applications including the use of the Pythagorean Theorem, understanding the definition of radical expressions, simplifying radical expressions containing numerical and variable radicands, graphing linear equations by graphing and elimination. Technology tools are utilized in this course. All students are required to participate in a unified comprehensive final exam to be administered during final exam week and achieve a C or higher on this exam. (or appropriate placement on the placement exam) in order to move on to the next level of math courses.	Current QCC students in a STEM major & new fall 2017 QCC students registered in a STEM major.
	STEM Advising & Course Registration	7/6/2017	8/10/2017	Appointments set up with students.	STEM Advisors will meet with all the summer bridge MAT099 Emporium and MAT099 students during the 6 week course and answer questions on course selection and register the students for fall 2017.	MAT099 Emporium and MAT099 students.
	QCC STEM Program Presentation	7/13/2017	7/13/2017	12:00-1:30pm	Presentation by QCC STEM Recruiter, Sean Thomson. Q&A after his presentation.	Worcester MAT099 Emporium students. Working on a date for the Southbridge students.
	QCC School Counselor Presentation	7/20/2017	7/20/2017	12:00-12:30pm	Tina Wells, QCC Coordinator of Counseling, will talk about the counseling services offered at QCC and how the STEM students are not alone and there is support available. Challenges of being in a STEM program. Q&A.	Worcester MAT099 Emporium students. Working on a date for the Southbridge students.
	Presentation by the STEM Career Placement & Transfer Counselor	7/20/2017	7/20/2017	12:30-1:30pm	Diana Boudreau will be presenting on all the services offered at the QCC Career Placement & Transfer Office. Q&A.	Worcester MAT099 Emporium students. Working on a date for the Southbridge students.
	STEM Career Placement & Transfer Office	6/1/2017	8/31/2017	walk-in and appt's	Assist students one on one with resumes, co-ops, internships, & job board information.	QCC students.
	Admissions Event: STEM Recruiter	6/10/2017	6/10/2017	WPI Touch Tomorrow	A festival of Science, Technology and Robots.	Secondary students.
	Admissions Event: STEM Recruiter	6/25/2017	6/25/2017	Asian Science Festival	QCC has a table with information. Admissions rep and enrollment counselor attend.	Secondary students.
	Admissions Event: STEM Recruiter	TBA	TBA	Southbridge Hispanic Festival	Town Festival: QCC has a table with information. STEM Recruiter and an enrollment counselors from Admissions attend.	Secondary students.
	Admissions Event: STEM Recruiter	Every Friday in the summer	Every Friday in the summer	STEM Fusion Tours	Tour of the QuEST Center and Advanced Manufacturing Lab.	New incoming students interested in QCC
	Computer Science Program	2/19/2017	8/10/2017	Research Project	Hao Loi, (Coordinator of the Computer Science Program) and Kyle Lapoint (CIS student) are working together on this project: Polygon filling using triangulation vs. Quad tree.	QCC professor and QCC student.
	Group Tutoring in the QuEST Center	5/15/2017	8/10/2017	Biology Tutoring	BIO 107, BIO 108, BIO 231, BIO 259, & BIO 260	QCC students
RCC	Facilitated Study Groups in Math and Science	5/30/2017	8/11/2017	varies	Facilitated study groups are offered in Math and Science courses to support student learning.	RCC students
	STEM Tutoring	5/30/2017	8/11/2017	varies	One-on-one tutoring in STEM subjects is offered to support student learning.	RCC students
	Summer STEM Academy	7/10/2017	8/7/2017	M-F , 8am-5pm	RoxMAPP - Biology (Mon), Chemistry (Tue), Math (Wed), Phys (Thur), Field Trips (Fri)	High school students
	Accuplacer Math Boot Camp	7/10/2017	8/11/2017	M-F , math classes	Intensive preparation in mathematics to improve ACCUPLACER scores for Destination College and other RCC students	Adult learners, current RCC students
	Summer Math Boot Camp	7/10/2017	7/28/2017	M-TH 10am-12pm & 6-8pm	Preparation for incoming students to take math Accuplacer as well as to assist those who want to improve math placement score. In addtion, continuing students who need math assistance for skill development can also participate. Use of EdREady online portal in class and independently. Ongoing support from RCC math tutors.	Adult learners, incoming and continuing students
STCC	STEM Summer Academy Math and writing bootcamps	7/3/2017	7/7/2017	M-F, 8am-2:30 pm	Math & writing bootcamps, study hall, coaching	
	STEM Summer Academy Summer courses	7/10/2017	8/11/2017	M-F, 8am-2:30 pm	Math course, college success seminar, study hall, coaching, Friday activities (e.g., field trips)	

STEM Starter Academy, DHE Interview, February 2017
Perspectives on Year 4 and Reflections on Years 1-3

Introduction

- Thank you for taking the time to speak with us today.
- The purpose of this interview is to deepen our understanding of the STEM Starter Academy Initiative. In particular, the interview has two parts: first, we'll focus on Year 4 and forward, then we'll ask for your reflections on Years 1-3. Jackie will conduct the first part of the interview and Jeremiah will conduct the second part.
- Preliminary findings from this interview will be included in our Year 3 Annual Evaluation report, combined with findings from our previous two interviews (in January and October 2016). More complete findings will be included with our supplemental report this fall.
- Since you are our only DHE interviewee(s), we will be unable to report information from this interview in a confidential manner. However, in the event that you would prefer for a particular response to remain confidential, please let us know, and we will honor your preference for confidentiality.
- Ask permission to use recorder.

Thoughts on SSA Year 4

Frame: To frame our conversation, we want to mention several things that have happened with SSA since we last spoke in October:

- You hosted a Fall SSA retreat
- You met with the community college presidents
- You've had increasing interaction with EOE around Early College and SSA more generally, you've released a competitive RFP and collected and reviewed those proposals.
- You collaborated with SSA administrators to facilitate 2-year/4-year transfer discussions at the PKAL meeting in January
- You continued your work with the "post-SSA" and the industry engagement working groups. The High-Low Participation group pilot tested the low-dose measure.
- STEM Starter Academy was included in the governor's budget and has been consolidated with some other previous DHE funded initiatives.

1. Is there anything missing from this list that has been an important recent development, a key decision point, or a shift in the initiative?
2. What have been the notable successes or challenges in Year 4 so far?

Looking forward

3. What is your vision for this initiative moving forward? What changes do you anticipate?
4. In our last interview you mentioned sensing some fatigue from campuses and you were seeking ways to re-energize them. What are your thoughts on that now?
    i. How have you engaged with campuses since our last interview?

5. One theme from our last interview was your sense that SSA was being integrated into campus communities and helping to break down silos. As SSA moves into the future, what factors do you see facilitating or constraining this kind of integration? What are the implications for the state or for campuses?
6. As you know, site report narratives painted a somewhat mixed picture of the sustainability of various pieces of the SSA initiative on campuses, and your own conversations with CCOPs reinforced a view from campus presidents that suggested a struggle to institutionalize various components of these programs:
    i. Given this - How do you feel about the prospects for sustainability of the various pieces of this initiative beyond the funding period? What leads you to think this?
    ii. What elements of the SSA initiative do you think are most important to carry forward? Why?
    iii. You also mentioned in October that several campuses shifted resources towards having STEM coordinators – have you seen any changes that you think resulted from this shift?

Reflections on Years 1-3

7. In our October interview, you mentioned the following successes:
    i. You observed that campuses had begun to share and implement ideas from other campuses.
    ii. You felt that campuses had begun to shift their allocation of resources in a way that suggested a growing attention to sustainability.
    iii. Campus commitment to participating in working groups and the evaluation.
    iv. The development of the model and campus adoption of it.

    Thinking back over the first three years of the initiative, does this list still reflect your thoughts about successes? Are there others you would like to mention? Have your thoughts about these successes shifted or changed as we've moved through Year 4?
8. Looking across all of these successes, what factors have facilitated these successes?
9. In our previous interviews, you mentioned the following challenges:
    i. Helping campuses to understand and manage data collection.
    ii. Varying levels of innovation, knowledge, and empowerment across sites.

    Do you still see these as the major challenges across the first three years? Are there others you would like to mention?
10. What have been the major lessons learned from the first three years of this initiative in terms of your facilitation?
11. Looking back, what are your thoughts about the relevance of the elements of the SSA model (as it was laid out in Year 2)? Are you considering adapting or changing any of those elements?

Concluding items

12. Do you have any feedback on the evaluation that you would like to share?
13. Is there anything we haven't discussed that you think would be important for us to know as the evaluators of the SSA initiative?

DHE Reflections on Progress to Date and Future Considerations

This section presents findings from an interview with DHE personnel who guide the STEM Starter Academy Initiative at the statewide level. On February 14, 2017 UMDI conducted an hour-long interview with the Associate Commissioner for Workforce Development, Strategy, and Operations and the Executive Director of STEM. The interview explored the interviewees' perspectives on the implementation of SSA during Year 4 (to date) and aspects of their vision for the initiative moving forward. The interview also included some reflections on Year 3 that were summarized in the Year 3 Evaluation Report.

The interview protocol is provided in Appendix K. Key findings that are relevant to Year 4 and that may guide future implementation and planning for next steps are summarized here.

Successes to date

DHE acknowledged that several successes (described in previous evaluation reports) have continued during Year 4. These included:

- Campuses are continuing to share and implement ideas with/from other campuses.
- Campuses are continuing to shift their allocation of resources in a way that suggests a growing attention to sustainability.
- Campuses have continued their commitment to participating in working groups and the evaluation.
- Campuses are continuing to work toward adopting, implementing, and refining the SSA Model.

DHE characterized the SSA model as "well established," noting that at many sites a range of SSA activities were moving toward institutionalization. The Associate Commissioner said, "Stasis is happening […] I think that many [program components] are deeply enough rooted that it will almost be hard to unhook them, and I don't think that anyone wants to unhook them." DHE noted that they were not asking the sites to make changes to their SSA programs, and that they did not intend to ask sites to make changes for the foreseeable future. The Executive Director said "There haven't been any new 'ah-ha' moments or innovations, and I think we are okay with that."

The Executive Director oted that some outside groups had reached out to partner with SSA sites, citing an instance when a group from Tufts requested time to connect with SSA sites during SSA's regularly scheduled monthly meeting. DHE characterized this development as unanticipated and welcome. DHE noted that this type of engagement served, in part, as an opportunity to share promising practices.

Both interviewees noted that many sites had expanded their activity around early college and STEM pathways programming. DHE noted that these efforts dovetailed with other initiatives happing within and across the system, and that SSA programs were both informing and being informed by these efforts. DHE noted that the goals and activities of these initiatives are "very much reflected in the work that we have done." Both interviewees said that work to connect SSA to other programs, both on and off campus, continued to "break down silos" and to demonstrate the alignment of SSA practices with a larger continuum of activities that support students from high school through four-year programs. For example, DHE noted that several SSA early college proposals indicated that campuses were continuing to reach to an array of STEM faculty and workforce and career development specialists, and were working to strengthen connections with early college and personnel involved with programs such as the

Commonwealth Dual Enrollment and Gateway to College initiatives. Interviewees also described a continued shift in orientation at the departmental level, moving from a view that attempts to fit multiple programs into SSA toward one that instead takes into account a broad base of work including—for example—Early College and STEM Pathways initiatives.

Both interviewees also highlighted campuses' commitment to participating in the SSA evaluation as a success. They indicated that campuses' commitment to the evaluation was, in part, a reflection of the the maturation of the initiative and the evaluation, as well as a demonstration of the campuses' focus on and commitment to learning from the work. DHE noted that the evaluation played an important role in facilitating conversations among campuses, and providing opportunities and tools with which DHE and the campuses could engage the larger STEM community.

Both interviewees agreed that campus collaboration, and a shifting of leadership from DHE to the campuses had facilitated sites' success. The Executive Director noted that maintaining the right level of engagement on a consistent basis was key to success. She further noted that deans had played a key role in the success of SSA programs at many sites because (in part), "Deans are in the sweet spot of being able to closely understand the impact on students, but also able to be change makers and decision makers on campus." The Executive Director said that several of the most successful SSA sites had effectively engaged deans, or had deans that were a part of SSA activities on a consistent basis.

Challenges and areas for continued attention

DHE acknowledged that—during Year 4—several sites were facing challenges that are characteristic of the dynamic environment in which the SSA initiative occurs. More specifically, both interviewees noted transitions in state- and campus-level leadership that have impacted sites, such as the hiring of new campus Presidents and shifts in project staff.

Interviewees also said that communicating the value of the initiative to a broader community beyond the limited group of those already deeply invested was an ongoing challenge. Both interviewees agreed that there is a perception that SSA has a fairly low profile. The Executive Director said, "I continue to feel that SSA is operating under the radar. That is a little unfortunate." Both interviewees noted that it was a challenge to package the learnings that had been generated from SSA in ways that were easily accessible to others doing work on related initiatives, including initiatives endeavoring to work at a statewide scale—something that they felt was a noteworthy accomplishment of the SSA community. Specifically, one interviewee said, "We are a decentralized system. I think there are some really strong lessons learned about the impact and value of doing this across the system, about building that community and collaboration among the people that are actually doing the work. Fifteen campus presidents came together and said 'We are going to submit one proposal.' That was huge." DHE representatives concurred that "getting the message out" and "telling the story"—communicating the value of SSA and the lessons learned—continue to be a work in progress, and an area of continued focus for DHE moving forward.

DHE reflected that they were uncertain if they had engaged top-level leadership on campuses as early or as effectively as they might have. One interviewee said,

> "I don't know if we, by design, engaged top level leadership on the campuses as effectively, as early, on a sustainable basis as maybe, in hindsight, we should have. I think SSA continues to be seen to a certain degree as a separate activity of the campus in a scheme that campus president and campus leadership have a huge array of challenges. I think we see this as much more prominent looking from the bottom up than they do looking from the top down. Doing it over again we would consider putting more effort into engaging the top-level leadership."

Looking forward

As previously noted, DHE acknowledged that the SSA model was well established, and anticipated minimizing requests for shifts in SSA programming. DHE noted, "It's a shift in leadership. It's an honoring of the evolution of the projects and an acknowledgment of where they are." Interviewees noted that they increasingly saw their role as supporting campuses effort to make connections with and support their community college students, in part by facilitating and supporting efforts to distil and share best practices.

Interviewees also indicated that faculty have done important work on variety of fronts with SSA, and that limited engagement with faculty may have resulted in a lost opportunity to gather key learnings about faculty engagement, faculty leadership, and faculty contributions this work. DHE said that they intend to consider inviting faculty to a gathering or learning symposium to discuss these and other issues relevant to SSA.

Prospects for Sustainability

DHE noted that campuses were engaging in conversations about the sustainability of SSA activities and supports. Interviewees agreed prospects varied from campus to campus, depending—in part—on which programs and practices had been found to be most successful. DHE did highlight a few program elements that were more likely to be sustained, including: partnerships with the districts, STEM specific advising, STEM specific career counseling, and increased support for STEM transfers message. DHE noted that SSA was not the only program supporting some of these strategies, and that work being done to align the work of various initiates supported the sustainability and institutionalization of key supports and strategies.

Comments on evaluation

Interviewees expressed appreciation for the sustained focus—by many stakeholders—on the evaluation effort, and acknowledged UMDI's thoughtful approach to the work. DHE said that, at times, campuses have pushed back appropriately on the workload associated with the evaluation (e.g., data collection, interviews, reporting), but have largely embraced the process. One interviewee said, "At the beginning of this I think there was not much done in terms of evaluation of projects, generally. There was probably more resistance in the early going in terms of what does this mean, but I think we have woven this in and been respectful of the campuses to the point where I think they put real value on this."

DHE said that that, fundamentally, they feel good about what has been done, and what has been measured. They indicated that the initiative has generated information that they hope can receive greater visibility, and noted that it was largely the responsibility of SSA stakeholders to share the important learnings that have been generated through the work. The Executive Director noted that the evaluation work was important because it provided information that could be used in communicating what the initiative had accomplished, including impacts on students and the system as a whole. The Deputy Commission said, "I think if we can at least make sure that what we have done and learned [through SSA] gets incorporated into other work, and there is enough people that know about it, then that to me will be [an important] success."

Refining the Definition of STEM for SSA

August 18, 2017

1. Overview of Topic

For the purposes of SSA, STEM includes programs of study related to the following 12 general fields: agriculture, architecture, biological and biomedical sciences, computer and information sciences, engineering, health professions, mathematics, mechanical and repair technologies, military technologies/technicians, physical sciences, precision production, and science technologies/technicians.

In order to measure the impact of SSA on the community college STEM pipeline, the SSA evaluation intends to capture all degree/certificate programs related to these general fields of study in its definition of STEM. However, as UMDI completed quantitative analyses for the Year 3 Annual Evaluation Report it determined that several programs of study potentially related to these fields (e.g., Liberal Arts – Biology) are not currently "counted" as STEM for the purposes of the SSA evaluation.

UMDI and DHE request campus help to identify programs of study that are related to the above fields but are not currently captured in the CIP codes used in the current SSA STEM definition.

2. Current definition of STEM for SSA

All programs assigned a CIP code that begins with any of the two digit CIP codes listed in Table 1 are currently counted as STEM for the SSA evaluation.

Table 1: Number of Graduates in SSA STEM CIP Codes and Fields of Study, 2014-2016

	Number of Graduates from 2014-2016	
Two Digit CIP Codes	**SSA Students**	**All Students**
CIP 01, 03 (Agriculture, Conservation, and Natural Resources)	10	258
CIP 04 (Architecture)	1	35
CIP 26 (Biological and Biomedical Services)	42	396
CIP 11 (Computer and Information Services)	143	1,703
CIP 14, 15 (Engineering and Engineering Technologies/Technicians)	203	1,738
CIP 51 (Health Professions and Clinical Sciences)	322	10,664
CIP 27 (Math and Statistics)	3	46
CIP 47 (Mechanic and Repair Tech/Technicians)	8	409
CIP 29 (Military Technologies/Technicians)	-	-
CIP 40 (Physical Sciences)	2	34
CIP 48 (Precision Production)	1	33
CIP 41 (Science Technologies/Technicians)	87	246

3. Proposed additions to the SSA definition of STEM

UMDI proposes adding a set of additional programs (identified by a unique CIP code/institution program ID) that we believe may be considered STEM by a majority of campuses. All of these programs are listed in the attached Excel workbook, "Potential Additions to SSA STEM Program Inventory", and nearly all of

these programs are assigned a CIP code that begins with "24" (the two-digit CIP code associated with liberal arts programs). A few additional programs that do not have a CIP code beginning with "24" are also included in the Excel workbook for consideration because UMDI found indications that the campus considers these majors to be a part of STEM. It is important to note that, at some campuses, several "Institution Program IDs" may be assigned to the same CIP code.

→(decision point) The attached Excel workbook "Potential Additions to SSA STEM Program Inventory" needs to be discussed by SSA administrators and checked by each institution.

UMDI requests that SSA campus representatives work with IR offices and other campus stakeholders (e.g., CAOs) to review the Excel workbook of proposed additions and:

- **Confirm that the programs listed in the workbook are in SSA STEM fields and**
- **Identify other programs of study that are related to SSA STEM fields, but are not captured in (a) the current list of CIP codes in Table 1 above or (b) the Excel workbook.**

4. **Possible complications**
    a. Site level
        i. New codes/programs can be added each year.
        ii. Multiple Institutional Program IDs can be associated with a single CIP code.
        iii. 10 of 15 sites define STEM programs on their websites. Those definitions vary by site. The proposed definition of STEM for SSA does not necessarily align with those definitions.
    b. System level
        i. BHE program titles are not standardized.
        ii. Definitions of STEM vary from program to program. For example, some programs include Health Professions and Clinical Sciences (CIP 51), while others do not.

5. **"Deadline" for finalizing definition of STEM for SSA – Mid-January**

6. **Proposed process for finalizing the definition of STEM for SSA for the SSA Year 4 Report →(decision point)**
    a. Reach agreement/consensus among DHE Administrators and SSA program personnel
        i. August conference call (DHE, campuses, UMDI)
        ii. Campuses have internal discussions (program administrators/IR representatives/CAOs/faculty?) to review the adjustments to the programs considered STEM for SSA proposed for their campus. David and Allison engage Patricia Marshall (end of September)
        iii. Second conference call (DHE, campuses, UMDI) to discuss additions (October)
        iv. Fall retreat – broader event to engage additional stakeholders
    b. Parallel process within DHE?
    c. Other considerations?

Refining SSA STEM Definition: bullet points for campus CAOs

Purpose/Issue

- UMDI is working to expand/refine the definition of STEM for the SSA evaluation.
- The purpose of expanding the definition is **not** to establish a definition of STEM that will be applied across many contexts—only to refine the definition as it applies to SSA. However, we realize that this activity *could* inform other campus-level or system-level conversations regarding what is counted as STEM.
- The definition of STEM that SSA currently uses is the one used to construct the state STEM Data Dashboard. That definition was intended to be broad, encompassing many STEM fields, including healthcare.

  However, the SSA evaluation has shown that many programs that community college students, faculty, and administrators might consider to be STEM are not currently counted as STEM for the SSA evaluation. For example, many STEM Liberal Arts (CIP 24) and General Studies (CIP 30) programs—even with concentrations such as biology, chemistry or physics—are not currently counted as STEM for SSA.

  UMDI recommends expanding the SSA definition of STEM to include these STEM programs in order to more accurately measure the impact of SSA on the community college STEM pipeline.

Request

- UMDI and DHE request that SSA administrators work with campus personnel—including IR offices, CAOs, and possibly faculty—to review the proposed additions to the list of programs counted as STEM to confirm that it is complete. Specifically, campuses should review the two attached documents and:
  - Confirm that the programs listed in the attached spreadsheet are related to the 12 general fields of study currently defined as STEM for SSA, and
  - Identify any additional programs that should be considered STEM for SSA but are not included in either the current list of STEM field of study CIP codes nor the proposed list of additional programs.

Timeline

- **Campuses should begin conversations and review of the proposed additions now.**
- **Please forward feedback** (confirmation and any additions for consideration) to UMDI (Gaby Stevenson, gstevenson@donahue.umassp.edu) **by the end of September.**
- UMDI will compile feedback and return it to campuses for review before a stakeholder meeting in October.
- If necessary, another round of review and feedback will take place after the October meeting.

- Ideally, a refined definition of STEM for SSA will **be finalized by mid-January 2018** when this definition will be applied to the next round of SSA data analysis.