Credit Recovery Courses, FA14-FA18

This report explores associations, if any, between credit recovery courses (CRC) and student success measures. Credit recovery courses are sections designed to give students the chance to regain credits that are lost because of withdrawing from other courses during the semester. Recouping credits is an important option for students to stay on track for timely graduation and may also help students retain satisfactory academic performance for financial aid purposes. CRC sections begin the 9th week of the semester and are typically lower division AUCC courses in the College of Liberal Arts.

Key Findings

CRC courses provide an important opportunity to maintain full-time status for students who need to withdraw from another course. Between FA14 and FA18, CRC courses helped 768 students earn 12 or more credits and maintain full-time status during their CRC term. Compared to non-CRC sections and CSU undergraduates overall, CRC courses serve a larger proportion of students who are Pell recipients, racially minoritized, nonresidents, and who have a lower CDHE index.

At the course level, CRC students are most successful in General Sociology (SOC 100), Music Appreciation (MU 100), and Introduction to Visual Arts (ART 100). However, CRC students overall tend to have lower persistence rates, term credit completion, and earn lower average term GPAs compared to non-CRC students. Further review of section level data by instructor and term should be used to guide conversations in order to understand if there are pedagogical approaches that are more or less successful for the CRC timeframe. Additionally, certain subject matter may be more or less appropriate for the CRC format.

Methodology

This study focused on two main research questions. First, does course level success differ for CRC sections of a course compared to standard 16 week sections? Course level success is defined by two measures, 1) overall course success (defined as earning an A, B, or C grade) and 2) grade points earned. Second, does CRC provide students an opportunity to improve their overall class level outcomes? Class level outcomes are measured using 1) persistence to the following fall, 2) term GPA, and 3) term completed credits for freshmen, sophomores, and juniors.

Population

The population includes all students who took a course that offered both CRC and non-CRC sections (Fall 2014-Fall 2018, excluding summer terms). A total of 1,493 students enrolled in at least one CRC section over this period. The following courses were included:

- Self/Community in American Culture Since 1877 (AMST 101),
- Human Origins and Variation (ANTH 120),
- Introduction to the Visual Arts (ART 100),
- Introduction to Humanities (E 232),
- Media in Society (JTC 100),
- World Literatures to 1500 (LB 170),
- World Literatures – The Modern Period (LB 171),
- Music Appreciation (MU 100),

- General Sociology (SOC 100), and
- Communication and Popular Culture (SPCM 100).

Inverse Propensity Weighting

Inverse propensity weighting (IPW) is a type of propensity score analysis that weights individuals based on a set of characteristics that predict membership in the treatment (in this case, a CRC section) versus the control group (non-CRC section) in order to more accurately estimate the treatment effect. As participation in a CRC course cannot be randomly assigned, IPW simulates random assignment and essentially creates comparable groups across selected characteristics. The first step in IPW is to create a propensity model, which is a binary logistic regression model that predicts treatment (CRC v. non-CRC) controlling for pre-treatment covariates (e.g., Pell recipient status, first generation status, racially minoritized status, STEM major, etc.). The resulting predicted values are used to calculate ATT weights (average treatment effect on the treated) for students in the control group (non-CRC)[1]; students in the treatment (CRC) are given a weight of 1. The calculated ATT weights were examined to ensure none were exceptionally large (generally not larger than 10) and trimmed accordingly. Once weighted, CRC and non-CRC groups should have a similar representation of characteristics known to impact student success; characteristics that were significantly different prior to weighting should be non-significant after the IPW procedure. IPW serves as a data preparation step prior to using other analytical methods, such as logistic or linear regression.

Analytical Approach to Evaluate Course Success

As noted above, successful CRC course completion is assessed using IPW followed by logistic regression modeling. Propensity model weighting characteristics include Pell recipient status, first generation status, racially-minoritized status, STEM major, CSU GPA, completed credits, and the number of W drops at census for the enrolled term. Means of these characteristics before and after weighting can be found in Appendix A. Characteristics that did not differ significantly between CRC and non-CRC sections prior to weighting were not included in the propensity model. The relationship between course success and CRC and non-CRC sections are then examined using weighted logistic regression, controlling again for the aforementioned characteristics (a "doubly robust" approach). Models are run using only CRC courses with large enough sample sizes (approximately 200 or more).

Analytical Approach to Evaluate Class Level Progression

Similar to course success, CRC and non-CRC students were matched as closely as possible using IPW. Propensity model weighting characteristics include Pell recipient status, first generation status, racially-minoritized status, STEM major, CSU GPA, completed credits, and the number of W drops at census for the enrolled term. Differences in persistence to the following fall are compared using weighted logistic regression modeling, while term GPA and term completed credits use weighted least squares regression, controlling again for matching characteristics. Means of matching characteristics before and after weighting, propensity models, and regression modeling results can be found in Appendix A.

Limitations

A major limitation of these analyses is course size; thus, standard errors are extremely large and statistical power is significantly reduced, making results less reliable. In addition, outcomes are also averaged across time, and do not account for changes that may occur from term to term, or changes in instructor.

[1] The ATT weights were calculated using the formula: predicted probability / (1 – predicted probability).

CRC Student Characteristics

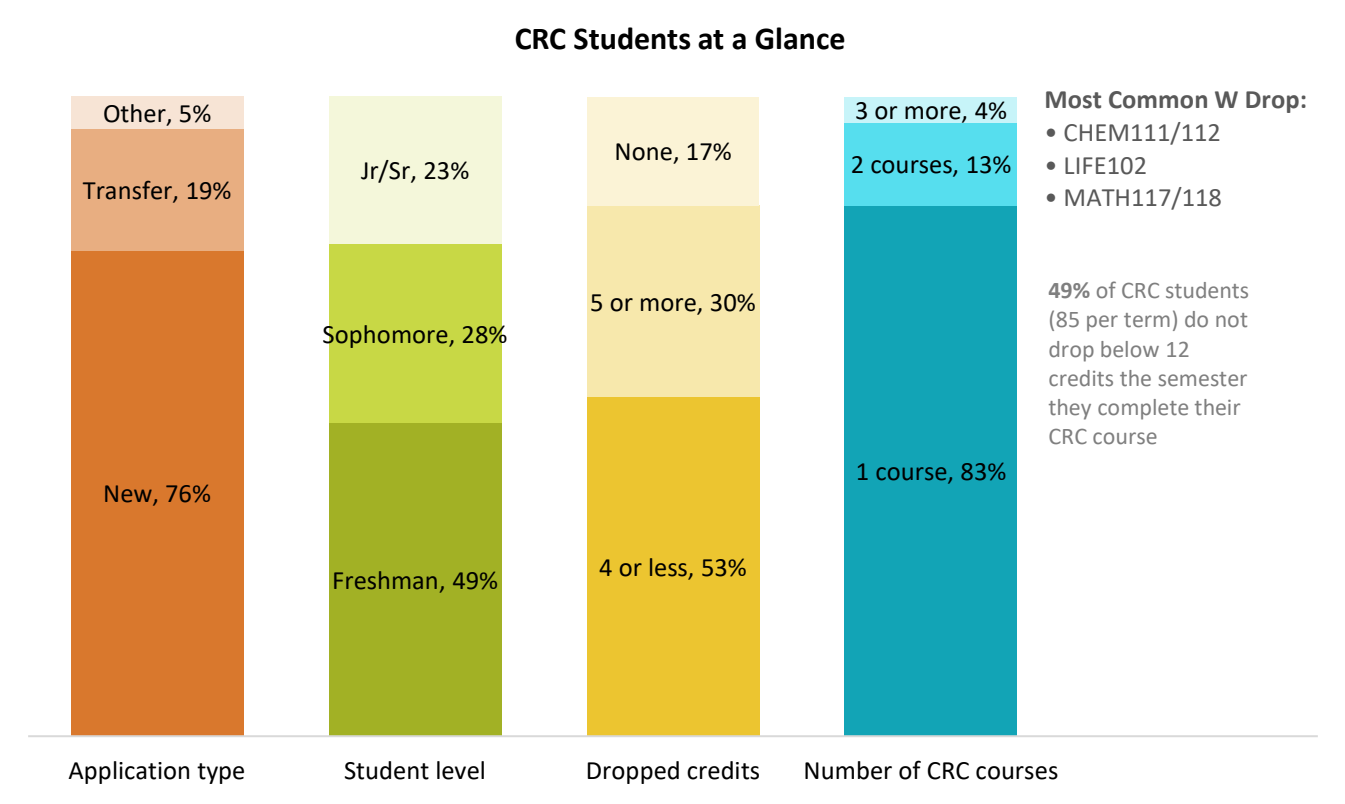
Table 1 displays the unique headcount and demographics of students that have taken at least one CRC course from FA14 to FA18 compared to students in the non-CRC sections and CSU overall.

Table 1. CRC Student Demographics, FA14-FA18

Population	Hdct	Female (%)	Avg CDHE Index	Pell Recipient (%)	STEM Major (%)	Nonresident (%)	Racially Minoritized (%)	First Generation (%)
CRC	1,493	48.5%	109.3	26.1%	38.3%	36.8%	28.6%	28.0%
Non-CRC	22,158	50.6%	111.9	22.0%	32.4%	29.7%	22.9%	25.4%
CSU Overall[1]		50.7%	113.9	19.8%	40.3%	25.5%	20.7%	25.1%

[1]Includes all RI undergraduates enrolled in FA14, SP15, FA15, SP16, FA16, SP17, FA17, SP18, and FA18

In comparison to non-CRC students, CRC students have a larger representation of Pell recipients (+4 PP), STEM majors (+6 PP), nonresidents (+7 PP), racially-minoritized (+6 PP), and first generation students (+2.6 PP), as well as a slightly lower average CDHE index (-2.6 index points). In comparison to all undergraduate CSU students during the same timeframe, CRC students also have a larger representation of Pell recipients (+6 PP), nonresidents (+11 PP), racially-minoritized (+8 PP), and first generation students (+3 PP). STEM major representation is nearly the same, as is the proportion of females. The CDHE index gap is nearly 5 points.



Seventy-six percent of CRC students started at CSU as new students, almost 20% as transfers, and nearly 5% as continuing, readmit, or non-degree seeking. The majority of CRC students are first or second year undergraduates, and about 50% of CRC students have a freshman class level (another 28% have a sophomore

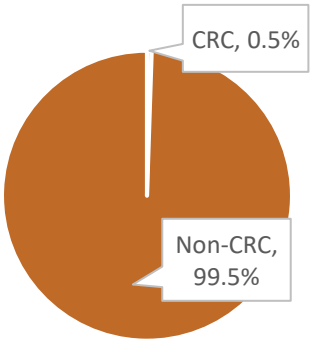
class level). Similarly, about 50% of CRC students are enrolled in a CRC course during their first or second semester at CSU (regardless of class level) and nearly 79% of CRC students are in their first two academic years. Regardless of class level (credits completed) or number of semesters since their first term at CSU, about three-quarters of CRC students are in their first two years of undergraduate education. About 14% of freshmen CRC students are admitted with recommended support, compared to 10% of all CSU freshmen, and 11% belong to a first-year Key community, compared to about 8% of all CSU freshmen.

Across class levels, about 25% of CRC students are undeclared during their CRC term compared to 9% of CSU students overall (see Table A-1 in the Appendix). They are slightly underrepresented in Business, Engineering, Liberal Arts, and Health and Human Sciences, and slightly overrepresented in Natural Sciences.

The majority (about 83%) of CRC students only take one CRC course, but about 13% have taken two CRC courses and another 4% take three or more CRC courses. This suggests that some students might be "playing the system," but it is not the majority.

The most commonly W dropped courses among CRC students are CHEM111/112, LIFE102, and MATH117/118. About 53% of CRC students W drop 4 credits or less the semester they take CRC and 30% are W dropping 5 or more credits. Interestingly, 17% of CRC students do not have any W dropped credits during their CRC semester.

College of Liberal Arts UG Student Credit Hour Production, FY15-19



The majority of undergraduate CRC and non-CRC students (98%) attempt full-time enrollment status during their course term, but of those students, only 65% of CRC actually complete at full-time status, compared to 87% of non-CRC students who attempt full-time enrollment status. Even with the CRC opportunity, CRC students are completing 12 credits at a lower rate compared to non-CRC students. However, 49% of all CRC students were able to maintain full-time status because of CRC, meaning they would have dropped below 12 credits without the opportunity. (The 65% figure mentioned above includes CRC students who would have maintained full-time status, even without the CRC course.) This is about 85 students per term that were able to complete a full-time load because of the CRC program.

CRC courses are primarily offered within the College of Liberal Arts. Relative to the overall number of undergraduate student credit hours produced by Liberal Arts from fiscal years 2015 through 2019, CRC courses make up less than 1%.

CRC Student Success Outcomes

This section describes student success outcomes, to include successful course completion, course grade points earned, persistence to the fall semester following a fall or spring CRC course, term GPA, and term completed credits.

Successful Course Completion

Table 2 displays CRC and non-CRC headcounts and unweighted success rates by course, as well as predicted success rates using IPW and binary logistic regression (successful/unsuccessful outcome). All weighted models assume non-Pell, continuing generation, non-racially minoritized, resident status, no W-dropped courses at

census, as well as average CDHE index, average cumulative GPA, and average cumulative completed credits by course. It is also important to note that course success rates are averaged across time and do not account for changes or trends that may occur from term to term.

Courses that offered at least one CRC section from FA14 to FA18 are included; weighted modeling is only conducted for those courses with CRC section headcounts around 200 or greater. Negative percentage point (PP) differences indicate lower success rates for CRC course sections; positive differences indicate CRC sections that are more successful than non-CRC sections. Headcounts and success rates for each CRC course by term is included in Appendix A.

Table 2. CRC and Non-CRC Course Success[1] by Unweighted and Weighted Samples, FA14-FA18

		Unweighted			Weighted Model[2]	
Course	Section	n	Success Rate (%)	PP Difference	Predicted Success Rate (%)	Predicted PP Difference
AMST101	CRC	191	69.6%	-18.2*	75.7%	-10.6*
	Non-CRC	606	87.8%		86.3%	
SOC 100	CRC	287	84.7%	-4.1*	93.7%	1.8
	Non-CRC	5083	88.8%		91.8%	
SPCM 100	CRC	498	82.5%	-10.7*	88.4%	-6.0*
	Non-CRC	5448	93.3%		94.4%	
MU 100	CRC	303	86.8%	-4.7*	96.1%	1.0
	Non-CRC	13304	91.5%		95.2%	
ART 100	CRC	215	89.8%	-2.8	95.9%	1.2
	Non-CRC	5204	92.5%		94.7%	
ANTH 120	CRC	157	75.8%	-8.9		
	Non-CRC	1481	84.7%			
E 232	CRC	6	66.7%	-16.9		
	Non-CRC	61	83.6%			
JTC 100	CRC	30	80.0%	-15.6		
	Non-CRC	451	95.6%			
LB 170	CRC	26	42.3%	-13.2		
	Non-CRC	63	55.6%			
LB 171	CRC	86	76.7%	-11.5		
	Non-CRC	102	88.2%			

*$p < .05$

[1] Defined as the proportion of students who earned an A, B, or C.

[2] Predicted values based on IPW-weighted logistic regression models, controlling for nonresident, STEM, racially-minoritized status, Pell recipient, first generation, CDHE index, census cumulative GPA, census cumulative credits, and W drops at census.

Based on unweighted values, non-CRC sections are more successful than CRC sections by an overall average of 10 percentage points. The largest unweighted success gaps exist in AMST 101 (-18 PP), E 232 (-17 PP), JTC 100 (-16 PP), and LB 170 (-13 PP); the smallest overall gaps exist in ART 100 (-3 PP), SOC 100 (-4 PP), and MU 100 (-5 PP). It is important to note that CRC sections for LB 170 (N=26), JTC 100 (N=30), and E 232 (N=6) have only been offered once; thus, no trend data is available and sample sizes are too small to make any meaningful observations about success outcomes.

After matching and controlling for the aforementioned characteristics, predicted success rates improved for each course for which IPW was feasible. MU 100, ART 100, and SOC 100 CRC predicted success rates do not differ significantly from the non-CRC matched group. Despite higher predicted success rates after IPW, AMST 101 and SPCM 100 continue to have statistically significant predicted success gaps. However, it is important to note that conclusions drawn from the results are limited due to large standard errors (see Appendix A). Model

fit will improve as headcounts increase over time. Despite these limitations, results are promising in that predicted CRC success rates for each course are greater than unweighted rates, and predicted PP differences are smaller or even negligible.

It is also important to note that these models do not take into account any changes in success that may occur over time (see Appendix A, Figures A1-A6 for individual course trends). For example, when CRC began in SP15 for AMST 101, the gap was 27 PP; by FA18, the gap had narrowed dramatically to only 3 PP (See Appendix A, Fig. A-3). However, success trends by individual courses by term should be interpreted with caution; success rates are more volatile given small CRC section sizes (~25 per term).

Average Grade Points Earned

Table 3 displays CRC and non-CRC unweighted average grade points earned by course, as well as predicted average grade points using IPW and weighted least squares regression. All models assume non-Pell, continuing generation, non-racially minoritized, and resident status, no W-dropped courses at census, as well as average values by course for CDHE index, cumulative GPA, and cumulative completed credits. See Appendix A for complete model results.

Table 3. CRC and Non-CRC Course Grade Points by Unweighted and Weighted Samples

		Unweighted			Weighted Model[1]	
Course	Section	n	Avg Grade Points Earned	Difference	Predicted Avg Grade Points	Predicted Difference
AMST101	CRC	191	2.38	-0.46*	2.40	-0.08
	Non-CRC	606	2.83		2.48	
SOC 100	CRC	287	2.92	0.05	2.84	0.37*
	Non-CRC	5083	2.87		2.47	
SPCM 100	CRC	498	2.64	-0.33*	2.69	-0.15*
	Non-CRC	5448	2.97		2.84	
MU 100	CRC	303	3.27	0.01	3.31	0.15*
	Non-CRC	13304	3.26		3.16	
ART 100	CRC	215	3.51	0.22*	3.64	0.43*
	Non-CRC	5204	3.28		3.21	
ANTH 120	CRC	157	2.57	-0.14		
	Non-CRC	1481	2.71			
E 232	CRC	6	2.11	-0.57		
	Non-CRC	61	2.68			
JTC 100	CRC	30	2.21	-1.01		
	Non-CRC	451	3.22			
LB 170	CRC	26	1.45	-0.36		
	Non-CRC	63	1.81			
LB 171	CRC	86	2.37	-0.48		
	Non-CRC	102	2.85			

*$p < .05$

[1]Predicted values based on weighted least squares regression, controlling for nonresident, STEM, racially-minoritized status, Pell recipient, first generation, CDHE index, census cumulative GPA, census cumulative credits, and W drops at census.

The largest unweighted gaps in average grade points earned exist for E 232 (-0.57), LB 171 (-0.48), AMST 101 (-0.46), LB 170 (-0.36), and SPCM 100 (-0.33). CRC sections for SOC 100 and MU 100 did not differ; interestingly, CRC students in ART 100 performed better than their non-CRC counterparts (+0.22 grade points). Once weighted

and modeled, predicted average grade points were significantly higher for CRC students in SOC 100, MU 100, and ART 100; and the predicted difference between AMST sections was no longer significant. While the predicted gap did decrease between SPCM 100 sections after IPW, CRC students still earned significantly fewer grade points (-0.15).

Persistence to the Following Fall, Term GPA, and Term Completed Credits

Table 4 displays predicted persistence rates to the following fall term, term GPA, and term completed credits by class level among unweighted and weighted CRC and non-CRC groups. All models assume zero W drops, in-state resident status, non-STEM, non-Pell, continuing generation, and non-racially minoritized status, as well as mean census GPA, mean CDHE index (included in freshman models only), and mean census completed credits for each class level. Courses are aggregated; thus, models do not account for any differential effects by course, only by CRC versus non-CRC sections. For full model results, see Appendix A.

Table 4. Unweighted and Weighted Model Outcomes by Class Level, Fall 2014-Fall 2018

Freshmen						
	Unweighted			Weighted Model[1]		
Outcome	CRC (n=763)	Non-CRC (n=15260)	Difference	CRC	Non-CRC	Difference
Avg. Term GPA	2.37	2.81	-0.44*	2.53	2.88	-0.35*
Avg. Term Completed Credits	11.3	13.5	-2.2*	11.5	13.5	-2.0*
Next Fall Persisted (%)	75.1%	85.4%	-10.3*	82.3%	89.2%	-6.9*
Sophomores						
	Unweighted			Weighted Model		
Outcome	CRC (n=448)	Non-CRC (n=7672)	Difference	CRC	Non-CRC	Difference
Avg. Term GPA	2.40	2.95	-0.55*	2.52	2.78	-0.26*
Avg. Term Completed Credits	10.8	13.8	-3.0*	11.3	13.6	-2.3*
Next Fall Persisted (%)	85.0%	91.6%	-6.6*	89.6%	92.0%	-2.5
Juniors						
	Unweighted			Weighted Model		
Outcome	CRC (n=222)	Non-CRC (n=3221)	Difference	CRC	Non-CRC	Difference
Avg. Term GPA	2.74	3.02	-0.28*	2.67	2.92	-0.25*
Avg. Term Completed Credits	11.5	13.8	-2.2*	12.0	13.8	-1.8*
Next Fall Persisted (%)	85.3%	91.0%	-5.7*	96.5%	97.7%	-1.1

*$p<.05$

[1]Predicted values based on IPW-weighted regression models, controlling for nonresident, STEM, racially-minoritized status, Pell recipient, first generation, CDHE index, census cumulative GPA, census cumulative credits, and W drops at census. Average term GPA and average term completed credits are modeled using weighted least squares regression; next fall persisted is modeled using weighted logistic regression.

Unweighted values indicate that CRC students have a lower average term GPA, lower average term completed credits, and lower persistence to the following fall compared to non-CRC students at each class level. Average gap in term GPA is most pronounced for sophomore CRC students (-0.55 grade points), as are term completed credits (-3.0). At each class level, CRC students' average term completed credits fall below full-time status (12 credits). Freshman CRC students exhibit the largest persistence gap to the following fall (-10.3 PP); smaller gaps

exist for sophomores (-6.6 PP) and juniors (-5.7 PP), which is expected given that students who are able to persist to subsequent years are less likely to attrite.

After weighted modeling, the predicted gap in outcomes between CRC and non-CRC students decreased for each class level. However, these gaps remained significant for average term GPA and average term completed credits for each level. While the predicted persistence gap remained significant for freshmen CRC students, the gap for sophomore and junior CRC students was not significant. This may indicate that the shortened CRC format may not work as well for freshmen students, but may be better suited to upperclassmen. While predicted completed credits fall just below 12 for CRC freshmen and sophomore students, the upper bound of the 95% confidence interval does exceed 12 for both classes (see Appendix A for full model results). Note that results are not conclusive due to large standard errors (see Appendix A); model fit will improve as headcounts increase over time.

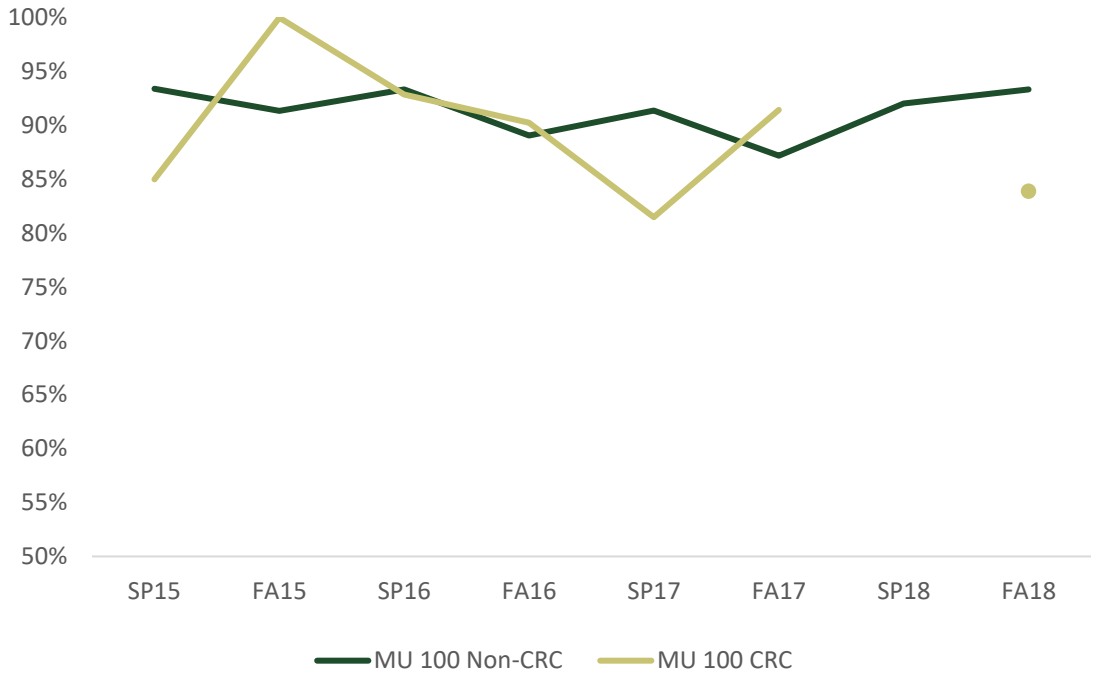
Conclusions

Compared to CSU undergraduates overall, CRC sections tend to serve a larger proportion of students who are Pell recipients, racially-minoritized, nonresidents, and who have a lower CDHE index. These sections provide an important opportunity for students to retain credit and maintain full-time status. Among larger CRC courses that have continued over time, SOC 100, MU 100, and ART 100 demonstrate the smallest gaps in success and grade points earned. Cumulatively, SPCM 100 and AMST 101 CRC sections are not as successful as their non-CRC counterparts; although course success is trending positively for AMST 101. Further review of section level data by instructor and term should be used to guide conversations in order to understand if there are pedagogical approaches that are more or less successful for the CRC timeframe. Additionally, certain subject matter may be more or less appropriate for the CRC format.

In terms of overall class level progression, CRC students earn lower average term GPAs, complete fewer term credits, and persist to the following fall at lower rates. Term GPA and persistence gaps are most notable for freshmen, even after controlling for differences in demographics and high school achievement. It is possible that the CRC course format, as it is currently designed, is not as effective for students early in their CSU career. Weighted model results are promising for sophomores and junior persistence rates; however, CRC students still lag behind in the number of credits earned during their CRC term. Despite this, CRC courses did help 768 students to earn 12 credits or more and maintain full-time status between FA14 and FA18.

Appendix A

Figure A-1. MU 100 Course Success by CRC Section, SP15-FA18*



*The CRC version of MU 100 was not offered in SP18.

Figure A-2. SOC 100 Course Success by CRC Section, SP15-FA18

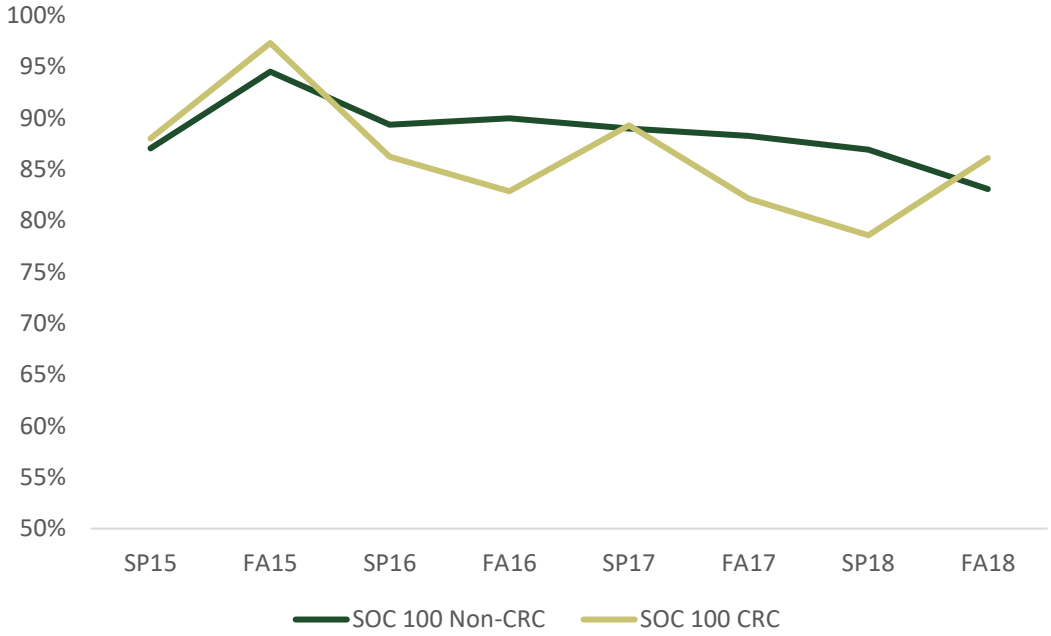


Figure A-3. AMST 101 Course Success by CRC Section, SP15-FA18

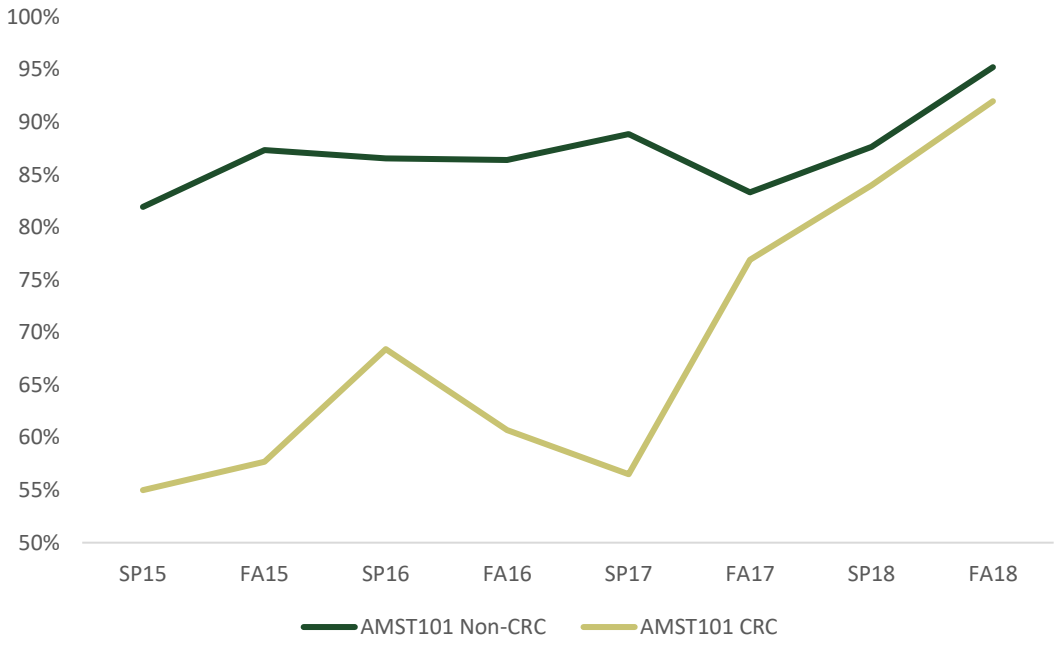


Figure A-4. ART 100 Course Success by CRC Section, SP15-FA18

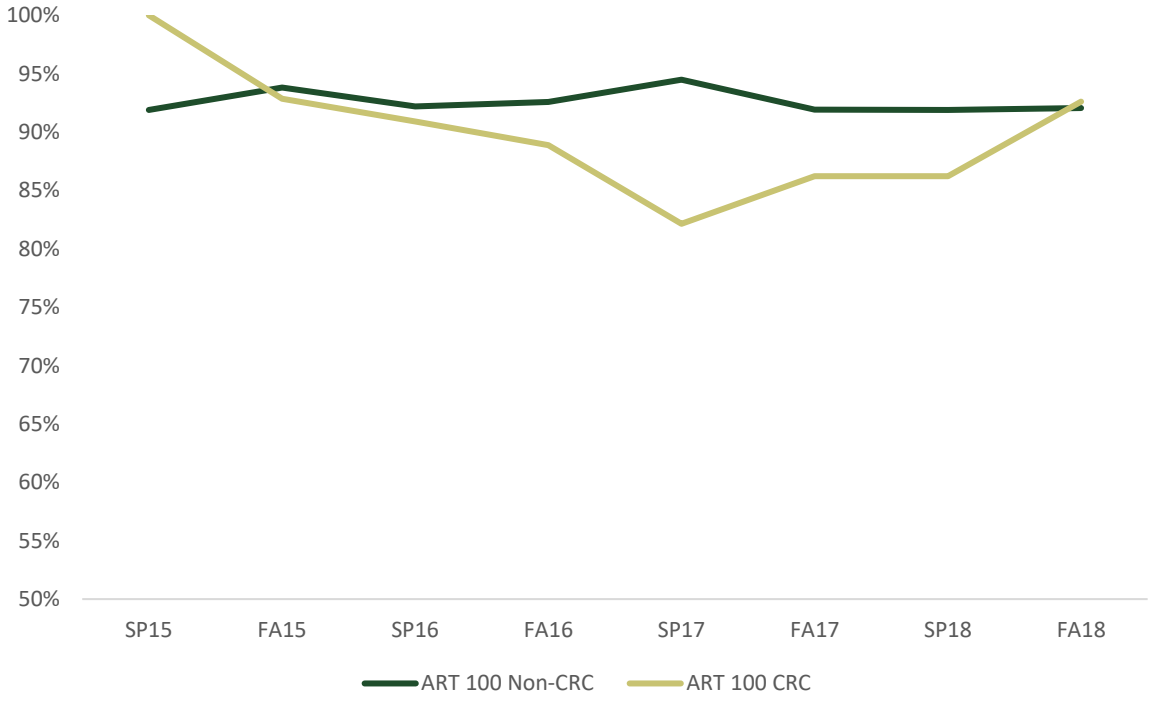


Figure A-5. SPCM 100 Course Success by CRC Section, SP15-FA18

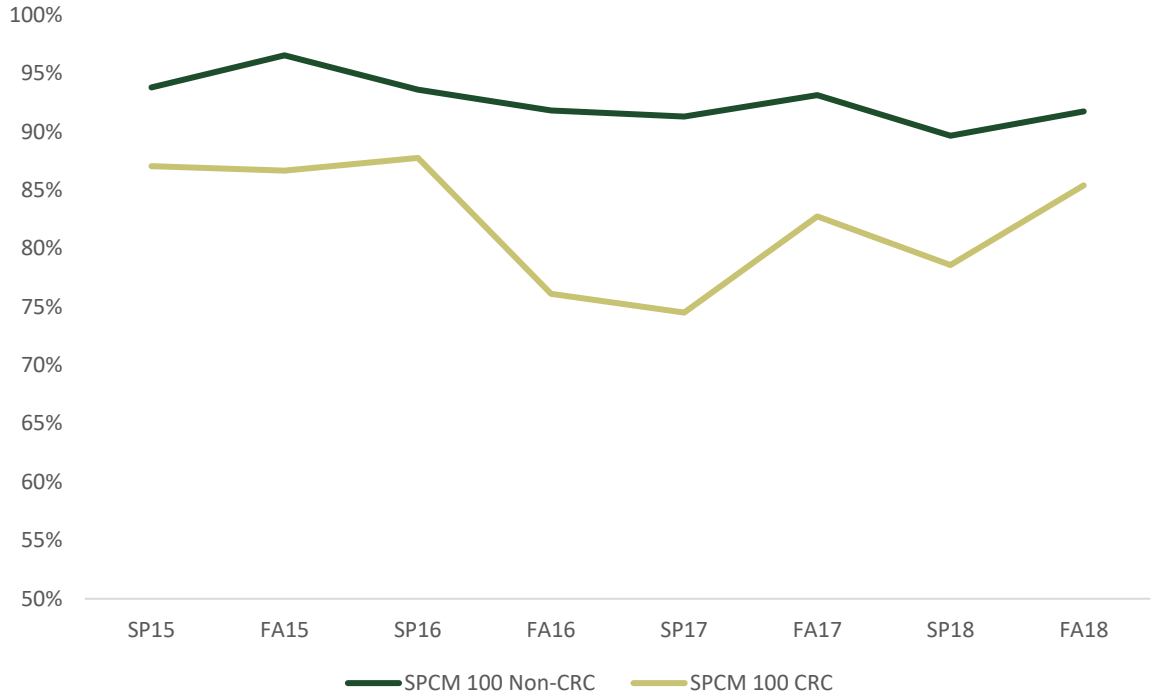


Figure A-6. ANTH 120 Course Success by CRC Section, SP15-FA17

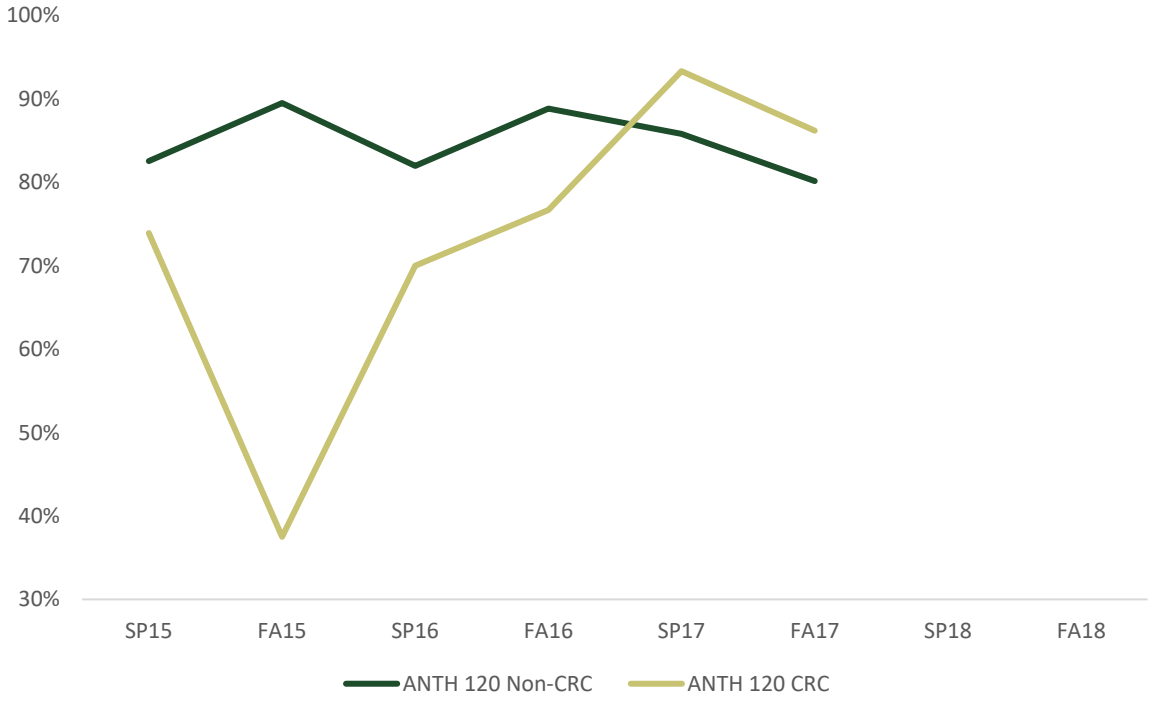


Table A-1. CRC Representation by Class Level and Major College, FA14-FA18

Cohort College by Class Level	Headcount	% within Class Level	Reference[1]
Freshman	**763**		
Intra-University	274	35.9%	26.8%
Natural Sciences	147	19.3%	16.7%
Health and Human Sciences	99	13.0%	15.3%
Liberal Arts	77	10.1%	12.0%
Walter Scott Jr College of Engr	53	6.9%	8.7%
Agricultural Sciences	46	6.0%	5.9%
Warner College of Natural Resources	37	4.8%	4.4%
Business	18	2.4%	7.5%
Veterinary Medicine & Biomedical Sci	12	1.6%	2.7%
Sophomore	**448**		
Intra-University	96	21.4%	11.5%
Health and Human Sciences	79	17.6%	19.8%
Natural Sciences	73	16.3%	16.5%
Liberal Arts	60	13.4%	17.3%
Walter Scott Jr College of Engr	39	8.7%	10.1%
Warner College of Natural Resources	35	7.8%	9.4%
Agricultural Sciences	29	6.5%	5.8%
Business	23	5.1%	9.4%
Veterinary Medicine & Biomedical Sci	14	3.1%	3.1%
Junior	**222**		
Natural Sciences	51	23.0%	16.6%
Liberal Arts	46	20.7%	21.7%
Health and Human Sciences	42	18.9%	20.2%
Walter Scott Jr College of Engr	27	12.2%	10.0%
Warner College of Natural Resources	17	7.7%	7.6%
Intra-University	15	6.8%	2.8%
Agricultural Sciences	10	4.5%	6.2%
Business	10	4.5%	11.5%
Veterinary Medicine & Biomedical Sci	4	1.8%	3.4%

*Includes all enrolled students FA14-FA18 except non-degree seeking

Table A-2. Credit Recovery Course Headcounts and Success Rates by Term, FA14-FA18

CRC Course	FA14 (N/Success Rate)	SP15 (N/Success Rate)	FA15 (N/Success Rate)	SP16 (N/Success Rate)	FA16 (N/Success Rate)	SP17 (N/Success Rate)	FA17 (N/Success Rate)	SP18 (N/Success Rate)	FA18 (N/Success Rate)	Total (N/Success Rate)
AMST101		20/55.0%	26/57.7%	19/68.4%	28/60.7%	23/56.5%	26/76.9%	24/87.5%	25/92.0%	192/69.6%
ANTH120		22/72.7%	16/37.5%	30/70.0%	30/76.7%	30/93.3%	29/86.2%	-	-	158/75.8%
ART 100	-	26/100%	28/92.9%	21/90.5%	27/88.9%	28/82.1%	29/86.2%	29/86.2%	27/92.6%	215/89.8%
E 232	-	6/66.7%	-	-	-	-	-	-	-	6/66.7%
JTC 100	-	-	-	-	-	-	30/80.0%	-	-	30/80.0%
LB 170	-	-	-	-	26/42.3%	-	-	-	-	26/42.3%
LB 171	-	-	-	12/83.3%	-	24/79.2%	28	22/59.1%	-	86/76.7%
MU 100	81/77.8%	20/85%	40/100%	28/92.9%	41/90.2%	27/81.5%	35/91.4%		31/83.9%	303/86.5%
SOC 100	41/73.2%	25/88%	37/97.3%	29/86.2%	35/82.9%	28/89.3%	28/82.1%	28/78.6%	36/85.4%	287/84.7%
SPCM100	55/85.5%	54/87%	60/86.7%	49/87.8%	67/76.1%	51/74.5%	58/82.8%	56/78.6%	48/85.4%	498/82.5%

Table A-3. AMST 101 CRC and Non-CRC Student Demographics, Unweighted and with Inverse Propensity Weighting (IPW)

	Unweighted			With IPW		
	CRC (N=448)	Non-CRC (N=4860)	Sig.	CRC (N=448)	Non-CRC (N=4860)	Sig.
Cumulative GPA (SE)	2.54 (0.05)	2.86 (0.04)	.000	2.54 (0.05)	2.60 (0.06)	.436
Completed credits (SE)	42.0 (2.44)	32.8 (1.30)	.001	42.0 (2.44)	41.5 (2.73)	.876
W count (SE)	1.28 (0.19)	0.31 (0.03)	.000	1.28 (0.19)	1.20 (0.15)	.760
CDHE Index (SE)	109.3 (0.98)	110.7 (0.56)	.217	-	-	-
Nonresident (SE)	0.32 (0.03)	0.27 (0.02)	.221	-	-	-
STEM (SE)	0.37 (0.04)	0.23 (0.02)	.000	0.37 (0.04)	0.35 (0.04)	.708
Pell recipient (SE)	0.36 (0.04)	0.23 (0.02)	.004	0.36 (0.04)	0.38 (0.04)	.665
First generation (SE)	0.32 (0.03)	0.29 (0.02)	.345	-	-	-
Racially minoritized (SE)	0.35 (0.03)	0.24 (0.02)	.005	0.35 (0.03)	0.30 (0.04)	.392

Table A-4. AMST 101 Propensity Score Model using Inverse Propensity Weighting

	B	S.E.	Wald	df	Sig.	Odds Ratio
Cumulative GPA	1.86	1.14	2.67	1.00	.102	6.40
Completed credits	0.02	0.02	1.41	1.00	.236	1.02
W count	0.38	0.15	6.37	1.00	.012	1.46
Credits^2	0.00	0.00	0.68	1.00	.409	1.00
W count^2	0.00	0.02	0.02	1.00	.902	1.00
GPA^2	-0.46	0.22	4.36	1.00	.037	0.63
STEM	0.55	0.24	5.00	1.00	.025	1.73
Pell recipient	0.58	0.24	5.55	1.00	.018	1.78
Racially Minoritized	0.32	0.26	1.56	1.00	.212	1.38
(Constant)	-3.69	1.39	7.04	1.00	.008	0.03

Table A-5. AMST 101 Logistic Regression Model Predicting Course Success

	B	SE	t	df	Sig.	Odds Ratio (95% CI)
(Constant)	-1.60	1.91	-0.84	425	.401	
CRC Section	-0.71	0.35	-2.04	425	.042	0.49 (0.25-0.98)
Cumulative GPA	1.69	0.33	5.06	425	.000	5.43 (2.81-10.47)
CSU Completed Credits	0.01	0.01	1.06	425	.291	1.01 (0.99-1.02)
W Count	-0.15	0.11	-1.46	425	.145	0.86 (0.70-1.05)
STEM	0.64	0.38	1.71	425	.088	1.90 (0.91-3.98)
Pell Recipient	-0.36	0.39	-0.93	425	.355	0.70 (0.32-1.51)
Racially Minoritized	0.91	0.47	1.94	425	.053	2.48 (0.99-6.23)
Nonresident	-0.79	0.39	-1.77	425	.077	0.50 (0.23-1.08)
CDHE Index	-0.01	0.02	-0.84	425	.399	0.99 (0.96-1.02)
First Generation	0.78	0.46	1.67	425	.095	2.17 (0.87-5.41)

Weighted N=218
Pseudo R^2=.345

Table A-6. AMST 101 Weighted Least Squares Regression Model Predicting Course Grade Points

		95% CI					
	B	Lower	Upper	SE	Beta	t	Sig.
(Constant)	0.07	-0.43	0.56	0.25			
CRC Section	-0.08	-0.28	0.12	0.10	-0.03	-0.81	.419
Cumulative GPA	0.91	0.74	1.08	0.09	0.45	10.43	.000
CSU Completed Credits	0.00	0.00	0.01	0.00	0.04	0.94	.350
W Count	0.07	0.02	0.11	0.02	0.13	2.82	.005
STEM	0.24	0.03	0.44	0.10	0.09	2.29	.023
Pell Recipient	-0.28	-0.50	-0.06	0.11	-0.11	-2.46	.014
Racially Minoritized	0.38	0.15	0.61	0.12	0.14	3.23	.001
Nonresident	-0.46	-0.69	-0.24	0.12	-0.17	-3.98	.000
First Generation	0.10	-0.14	0.33	0.12	0.04	0.80	.425

N=441
F(9,432)=20.43*
Adjusted R^2=.284

Table A-7. SOC 100 CRC and Non-CRC Student Demographics, Unweighted and with Inverse Propensity Weighting (IPW)

	Unweighted			With IPW		
	CRC (N=203)	Non-CRC (N=3361)	Sig.	CRC (N=203)	Non-CRC (N=3361)	Sig.
Cumulative GPA (SE)	2.56 (0.05)	2.89 (0.01)	.000	2.56 (0.05)	2.47 (0.06)	.276
Completed credits (SE)	33.0 (1.70)	34.7 (0.46)	.370	-	-	-
W count (SE)	0.87 (0.11)	0.35 (0.01)	.000	0.87 (0.11)	0.99 (0.14)	.514
CDHE Index (SE)	109.6 (0.75)	111.8 (0.18)	.004	109.6 (0.75)	109.6 (0.95)	.980
Nonresident (SE)	0.36 (0.03)	0.24 (0.01)	.000	0.36 (0.03)	0.26 (0.04)	.041
STEM (SE)	0.38 (0.03)	0.23 (0.01)	.000	0.38 (0.03)	0.42 (0.04)	.435
Pell recipient (SE)	0.31 (0.03)	0.23 (0.01)	.009	0.31 (0.03)	0.37 (0.04)	.277
First generation (SE)	0.27 (0.03)	0.27 (0.01)	.961	-	-	-
Racially minoritized (SE)	0.30 (0.03)	0.27 (0.01)	.324	-	-	-

Table A-8. SOC 100 Propensity Score Model using Inverse Propensity Weighting

	B	S.E.	Wald	df	Sig.	Odds Ratio
Cumulative GPA	1.03	0.57	3.27	1.00	.070	2.79
W count	0.06	0.10	0.35	1.00	.553	1.06
W count^2	0.02	0.01	2.06	1.00	.151	1.02
GPA^2	-0.36	0.12	8.83	1.00	.003	0.70
CDHE Index	0.05	0.09	0.26	1.00	.614	1.05
CDHE Index^2	0.00	0.00	0.25	1.00	.615	1.00
Nonresident	0.25	0.20	1.53	1.00	.216	1.28
STEM	0.94	0.18	25.87	1.00	.000	2.56
Pell recipient	0.74	0.18	16.01	1.00	.000	2.09
(Constant)	-6.03	4.85	1.55	1.00	.213	0.00

Table A-9. SOC 100 Logistic Regression Model Predicting Course Success

	B	SE	t	df	Sig.	Odds Ratio (95% CI)
(Constant)	-1.16	1.31	-0.88	2821		
CRC Section	0.27	0.27	1.02	2821	.309	1.32 (0.78-2.23)
Cumulative GPA	1.21	0.20	6.05	2821	.000	3.37 (2.27-4.99)
CSU Completed Credits	0.00	0.01	0.43	2821	.668	1.00 (0.99-1.01)
W Count	-0.22	0.06	-3.84	2821	.000	0.80 (0.72-0.90)
STEM	0.47	0.26	1.79	2821	.073	1.60 (0.96-2.67)
Pell Recipient	0.20	0.28	0.73	2821	.464	1.22 (0.71-2.11)
Racially Minoritized	-0.13	0.28	-0.47	2821	.636	0.87 (0.50-1.52)
Nonresident	-0.28	0.29	-0.97	2821	.330	0.75 (0.43-1.33)
CDHE Index	0.00	0.01	0.00	2821	.996	1.00 (0.98-1.02)
First Generation	-0.13	0.26	-0.50	2821	.619	0.88 (0.52-1.47)

Weighted N=293
Pseudo R^2=.218

Table A-10. SOC 100 Weighted Least Squares Regression Model Predicting Course Grade Points

		95% CI					
	B	Lower	Upper	SE	Beta	t	Sig.
(Constant)	-0.19	-0.62	0.24	0.22			
CRC Section	0.36	0.28	0.45	0.04	0.14	8.50	.000
CDHE Index	0.01	0.01	0.01	0.00	0.08	4.56	.000
STEM	0.23	0.15	0.32	0.04	0.09	5.47	.000
Pell Recipient	0.20	0.11	0.30	0.05	0.08	4.10	.000
Racially Minoritized	-0.02	-0.12	0.07	0.05	-0.01	-0.45	.656
Nonresident	-0.09	-0.18	0.00	0.05	-0.04	-2.05	.040
First Generation	-0.06	-0.16	0.04	0.05	-0.02	-1.21	.227
Cum CSU GPA	0.65	0.58	0.72	0.04	0.34	18.72	.000
Cum Completed Credits	0.00	0.00	0.00	0.00	0.03	1.47	.141
W count	-0.10	-0.12	-0.08	0.01	-0.15	-8.51	.000

N=2833
F(10,2823)=81.90*
Adjusted R^2=.222

Table A-11. SPCM 100 CRC and Non-CRC Student Demographics, Unweighted and with Inverse Propensity Weighting (IPW)

	Unweighted			With IPW		
	CRC (N=347)	Non-CRC (N=3590)	Sig.	CRC (N=347)	Non-CRC (N=3590)	Sig.
Cumulative GPA (SE)	2.54 (0.04)	2.81 (0.01)	.000	2.54 (0.04)	2.51 (0.04)	.509
Completed credits (SE)	33.9 (1.39)	32.3 (0.42)	.262	-	-	-
W count (SE)	0.73 (0.07)	0.31 (0.01)	.000	0.73 (0.07)	0.99 (0.09)	.514
CDHE Index (SE)	109.6 (0.57)	109.1 (0.18)	.406	-	-	-
Nonresident (SE)	0.33 (0.02)	0.30 (0.01)	.131	-	-	-
STEM (SE)	0.36 (0.02)	0.19 (0.01)	.000	0.36 (0.02)	0.37 (0.03)	.607
Pell recipient (SE)	0.25 (0.02)	0.22 (0.01)	.097	0.25 (0.02)	0.28 (0.03)	.337
First generation (SE)	0.27 (0.02)	0.26 (0.01)	.491	-	-	-
Racially minoritized (SE)	0.28 (0.02)	0.25 (0.01)	.210	-	-	-

Table A-12. SPCM 100 Propensity Score Model using Inverse Propensity Weighting

	B	S.E.	Wald	df	Sig.	Odds Ratio
W count	0.19	0.08	5.18	1.00	.023	1.21
Cumulative GPA	-0.29	0.39	0.56	1.00	.452	0.75
W count^2	0.01	0.01	0.51	1.00	.475	1.01
GPA^2	-0.03	0.08	0.18	1.00	.671	0.97
STEM	0.93	0.13	53.38	1.00	.000	2.53
Pell recipient	0.38	0.13	7.91	1.00	.005	1.46
(Constant)	-1.79	0.46	15.09	1.00	.000	0.17

Table A-13. SPCM 100 Logistic Regression Model Predicting Course Success

	B	SE	t	df	Sig.	Odds Ratio (95% CI)
(Constant)	0.26	0.63	0.42	3625		
CRC Section (SE)	-0.79	0.18	-4.28	3625	.000	0.45 (0.32-0.65)
W Count (SE)	-0.16	0.10	-1.56	3625	.118	0.85 (0.70-1.04)
Cumulative GPA (SE)	0.09	0.65	0.14	3625	.886	1.10 (0.30-3.95)
W count^2 (SE)	0.01	0.01	0.65	3625	.517	1.01 (0.99-1.03)
Cumulative GPA^2	0.30	0.17	1.77	3625	.078	1.35 (0.97-1.87)
STEM (SE)	0.56	0.22	2.52	3625	.012	1.75 (1.13-2.72)
Pell Recipient (SE)	-0.10	0.25	-0.40	3625	.687	0.90 (0.55-1.48)
First Generation (SE)	0.27	0.25	1.08	3625	.278	1.31 (0.80-2.13)
Racially Minoritized (SE)	-0.01	0.23	-0.04	3625	.969	0.99 (0.63-1.55)
Nonresident (SE)	0.02	0.23	0.07	3625	.941	1.02 (0.64-1.61)

Weighted N=646

Pseudo R^2=.227

Table A-14. Weighted Least Squares Regression Predicting SPCM 100 Grade Points

		95% CI					
	B	Lower	Upper	SE	Beta	t	Sig.
(Constant)	0.68	0.36	1.01	0.17			
CRC Section	-0.15	-0.21	-0.08	0.03	-0.07	-4.42	.000
CDHE Index	0.00	0.00	0.01	0.00	0.03	1.74	.083
STEM	0.13	0.06	0.20	0.04	0.06	3.66	.000
Pell Recipient	-0.02	-0.10	0.06	0.04	-0.01	-0.43	.668
Racially Minoritized	0.05	-0.03	0.13	0.04	0.02	1.27	.203
Nonresident	-0.14	-0.22	-0.07	0.04	-0.06	-3.94	.000
First Generation	0.02	-0.06	0.10	0.04	0.01	0.55	.584
Cumulative GPA	0.71	0.66	0.76	0.03	0.45	27.54	.000
Cumulative Completed Credits	0.00	0.00	0.00	0.00	0.02	1.05	.293
W Count	-0.04	-0.06	-0.02	0.01	-0.07	-4.08	.000

N=3357
F(10,3347)=109.26*
Adj R^2=.244

Table A-15. MU 100 CRC and Non-CRC Student Demographics, Unweighted and with Inverse Propensity Weighting (IPW)

	Unweighted			With IPW		
	CRC (N=152)	Non-CRC (N=8002)	Sig.	CRC (N=152)	Non-CRC (N=8002)	Sig.
W count (SE)	0.67 (0.10)	0.26 (0.01)	.000	0.67 (0.10)	1.15 (0.18)	.023
Cumulative GPA (SE)	2.49(0.06)	2.83 (0.01)	.000	2.49(0.06)	2.47 (0.06)	.843
Completed credits (SE)	29.1 (1.78)	32.3 (0.29)	.083	29.1 (1.78)	30.6 (2.04)	.600
Nonresident (SE)	0.45 (0.03)	0.31 (0.00)	.000	0.45 (0.03)	0.37 (0.04)	.116
STEM (SE)	0.42 (0.03)	0.36 (0.00)	.035	0.42 (0.03)	0.45 (0.04)	.617
Pell recipient (SE)	0.19 (0.02)	0.21 (0.00)	.483	-	-	-
First generation (SE)	0.26 (0.03)	0.25 (0.00)	.470	-	-	-
Racially minoritized (SE)	0.26 (0.03)	0.22 (0.00)	.090	0.26 (0.03)	0.32 (0.04)	.295
CDHE Index (SE)	108.8 (0.81)	111.6 (0.11)	.000	108.8 (0.81)	109.6 (1.09)	.551

Table A-16. MU 100 Propensity Score Model using Inverse Propensity Weighting

	B	S.E.	Wald	df	Sig.	Odds Ratio
W count	0.31	0.10	8.85	1.00	0.003	1.36
Cumulative GPA	0.62	0.62	0.99	1.00	0.320	1.85
Completed credits	0.01	0.01	0.77	1.00	0.382	1.01
W count^2	0.00	0.01	0.01	1.00	0.939	1.00
GPA^2	-0.24	0.13	3.29	1.00	0.070	0.79
Completed credits^2	0.00	0.00	1.31	1.00	0.252	1.00
Nonresident	0.56	0.19	8.46	1.00	0.004	1.74
STEM	0.45	0.19	5.53	1.00	0.019	1.57
Racially Minoritized	0.38	0.20	3.78	1.00	0.052	1.47
CDHE Index	-0.01	0.01	0.42	1.00	0.515	0.99
(Constant)	-4.11	1.12	13.40	1.00	0.000	0.02

Table A-17. MU 100 Logistic Regression Model Predicting Course Success

	B	SE	t	df	Sig.	Odds Ratio (95% CI)
(Constant)	0.20	1.46	0.14	7198		
CRC Section (SE)	0.23	0.31	0.74	7198	.459	1.26 (0.68-2.33)
W Count (SE)	-0.14	0.14	-1.00	7198	.315	0.87 (0.67-1.14)
Cumulative GPA (SE)	1.64	0.83	1.97	7198	.049	5.15 (1.01-26.27)
Completed credits (SE)	-0.02	0.02	-1.21	7198	.227	0.98 (0.94-1.01)
W count^2 (SE)	0.00	0.01	-0.26	7198	.798	1.00 (0.97-1.02)
Cumulative GPA^2 (SE)	-0.06	0.20	-0.32	7198	.751	0.94 (0.64-1.38)
Completed Credits^2 (SE)	0.00	0.00	0.56	7198	.573	1.00 (1.00-1.00)
Nonresident (SE)	-0.07	0.29	-0.25	7198	.806	0.93 (0.52-1.66)
STEM (SE)	-0.10	0.31	-0.32	7198	.748	0.91 (0.50-1.66)
Racially Minoritized (SE)	-0.13	0.26	-0.49	7198	.624	0.88 (0.52-1.48)
CDHE Index (SE)	-0.01	0.01	-0.51	7198	.611	0.99 (0.97-1.02)

Weighted N=251

Pseudo R^2=.211

Table A-18. MU 100 Weighted Least Squares Regression Predicting Course Grade Points

		95% CI					
	B	Lower	Upper	SE	Beta	t	Sig.
(Constant)	1.40	1.13	1.67	0.14			
CRC Section	0.16	0.10	0.21	0.03	0.06	5.35	.000
CDHE Index	0.00	0.00	0.00	0.00	0.02	1.28	.202
STEM	0.08	0.03	0.14	0.03	0.03	2.83	.005
Pell Recipient	-0.07	-0.14	0.00	0.04	-0.02	-1.89	.059
Racially Minoritized	-0.02	-0.09	0.05	0.03	-0.01	-0.58	.563
Nonresident	-0.03	-0.09	0.02	0.03	-0.01	-1.12	.262
First Generation	0.11	0.04	0.17	0.03	0.04	3.07	.002
Cumulative GPA	0.62	0.57	0.67	0.02	0.32	25.39	.000
Cumulative Completed Credits	0.00	0.00	0.00	0.00	0.01	0.42	.675
W Count	-0.05	-0.07	-0.04	0.01	-0.08	-6.59	.000

N=6823
F(10,6813)=99.96*
Adjusted R^2=.127

Table A-19. ART 100 CRC and Non-CRC Student Demographics, Unweighted and with Inverse Propensity Weighting (IPW)

	Unweighted			With IPW		
	CRC (N=157)	Non-CRC (N=3592)	Sig.	CRC (N=448)	Non-CRC (N=4860)	Sig.
Cumulative GPA (SE)	2.61 (0.06)	2.83 (0.01)	.000	2.61 (0.06)	2.57 (0.07)	.738
Completed credits (SE)	32.8 (2.05)	36.1 (0.47)	.154	32.8 (2.05)	29.4 (1.95)	.233
W count (SE)	0.72 (0.09)	0.35 (0.01)	.000	0.72 (0.09)	0.95 (0.13)	.132
Nonresident (SE)	0.39 (0.03)	0.33 (0.01)	.077	0.39 (0.03)	0.37 (0.04)	.722
STEM (SE)	0.40 (0.03)	0.36 (0.01)	.270	0.40 (0.03)	0.38 (0.04)	.702
Pell recipient (SE)	0.25 (0.03)	0.21 (0.01)	.263	0.25 (0.03)	0.25 (0.04)	.955
First generation (SE)	0.29 (0.03)	0.25 (0.01)	.184	0.29 (0.03)	0.29 (0.03)	.775
Racially minoritized (SE)	0.29 (0.03)	0.21 (0.01)	.009	0.29 (0.03)	0.28 (0.03)	.822

Table A-20. ART 100 Propensity Score Model using Inverse Propensity Weighting

	B	S.E.	Wald	df	Sig.	Odds Ratio
W count	0.43	0.14	9.88	1	.002	1.53
Cumulative GPA	-0.51	0.50	1.05	1	.306	0.60
Completed Credits	0.00	0.01	0.02	1	.897	1.00
W count^2	-0.03	0.02	1.92	1	.165	0.97
Cumulative GPA^2	0.05	0.10	0.24	1	.623	1.05
Completed credits^2	0.00	0.00	0.22	1	.643	1.00
Nonresident	0.26	0.19	1.91	1	.167	1.30
STEM	0.05	0.18	0.07	1	.798	1.05
Pell recipient	0.09	0.22	0.18	1	.674	1.10
First generation	0.21	0.20	1.03	1	.310	1.23
Racially minoritized	0.38	0.21	3.36	1	.067	1.46
(Constant)	-2.49	0.56	19.48	1	.000	0.08

Table A-21. ART 100 Weighted Logistic Regression Model Predicting Course Success

	B	SE	t	df	Sig.	Odds Ratio (95% CI)
(Constant)	-0.04	0.53	-0.07	3179		
CRC section	0.27	0.33	0.83	3179	.406	1.32 (0.69-2.51)
STEM	0.53	0.30	1.78	3179	.075	1.69 (0.67-2.51)
Pell receipient	0.25	0.29	0.87	3179	.387	1.28 (0.73-2.25)
First generation	-0.13	0.34	-0.37	3179	.714	0.88 (0.45-1.72)
Racially minoritized	0.50	0.34	1.47	3179	.141	1.64 (0.85-3.17)
Cumulative GPA	0.92	0.20	4.62	3179	.000	2.50 (1.70-3.69)
Completed Credits	0.01	0.01	1.63	3179	.103	1.01 (1.00-1.02)
W count	-0.18	0.08	-2.20	3179	.028	0.83 (0.71-0.98)
Nonresident	-0.92	0.28	-3.27	3179	.001	0.40 (0.23-0.69)

Weighted N=280
Pseudo R^2=.193

Table A-22. Weighted Least Squares Regression Predicting ART 100 Grade Points

		95% CI					
	B	Lower	Upper	Std. Error	Beta	t	Sig.
(Constant)	1.66	1.51	1.80	0.07			
CRC section	0.43	0.36	0.49	0.03	0.20	12.34	.000
STEM	0.30	0.23	0.37	0.04	0.13	8.37	.000
Pell recipient	0.09	0.01	0.19	0.05	0.04	2.11	.035
First generation	-0.04	-0.12	0.05	0.04	-0.02	-0.85	.395
Racially minoritized	0.06	-0.02	0.14	0.04	0.02	1.44	.151
Cumulative GPA	0.51	0.46	0.56	0.02	0.37	21.63	.000
Completed credits	0.00	0.00	0.00	0.00	0.06	3.41	.001
W count	-0.04	-0.06	-0.01	0.01	-0.05	-2.65	.008
Nonresident	-0.21	-0.27	-0.12	0.04	-0.09	-5.51	.000

N=3099
Adj R^2=0.218
F(9,3090)=97.42*

Table A-23. Freshmen CRC and Non-CRC Student Demographics, Unweighted and with Inverse Propensity Weighting (IPW)

	Unweighted			With IPW		
	CRC (N=717)	Non-CRC (N=13289)	Sig.	CRC (N=717)	Non-CRC (N=13289)	Sig.
Nonresident (SE)	0.38 (0.02)	0.30 (0.004)	.000	0.38 (0.02)	0.34 (0.02)	.164
STEM (SE)	0.33 (0.02)	0.26 (0.004)	.000	0.33 (0.02)	0.34 (0.02)	.837
Pell recipient (SE)	0.24 (0.02)	0.22 (0.004)	.114	0.24 (0.02)	0.25 (0.02)	.747
First generation (SE)	0.26 (0.02)	0.26 (0.004)	.822	0.26 (0.02)	0.27 (0.02)	.829
Racially minoritized (SE)	0.32 (0.02)	0.25 (0.004)	.000	0.32 (0.02)	0.32 (0.02)	.751
CDHE Index (SE)	108.2 (0.38)	110.1 (0.09)	.000	108.2 (0.38)	108.3 (0.41)	.838
CDHE $Index^2$ (SE)	11804.2 (83.1)	12241.1 (20.2)	.000	11804.2 (83.1)	11831.2 (89.3)	.825
First term (SE)	0.49 (0.02)	0.53 (0.004)	.021	0.49 (0.02)	0.45 (0.02)	.111

Table A-24. Freshmen Propensity Model Predicting CRC Membership

	B	S.E.	Wald	df	Sig.	Odds Ratio
Nonresident	0.35	0.09	15.98	1	.000	1.42
STEM	0.44	0.09	24.30	1	.000	1.55
Pell Recipient	0.11	0.10	1.20	1	.273	1.12
First Generation	-0.09	0.10	0.84	1	.359	0.91
Racially Minoritized	0.33	0.09	12.10	1	.001	1.39
CDHE Index	0.10	0.06	2.82	1	.093	1.11
CDHE Index^2	0.00	0.00	3.92	1	.048	1.00
First Term	-0.12	0.08	2.11	1	.147	0.89
(Constant)	-7.76	3.29	5.55	1	.018	0.00

Table A-25. Weighted Least Squares Regression Model for Freshmen, Predicting Term GPA

		95% CI					
	B	Lower Bound	Upper Bound	SE	Beta	t	Sig.
(Constant)	0.24	0.07	0.40	0.09			
CRC Section	-0.35	-0.38	-0.32	0.02	-0.19	-22.6	.000
Nonresident	-0.06	-0.09	-0.02	0.02	-0.03	-3.3	.001
STEM	-0.19	-0.22	-0.15	0.02	-0.10	-11.1	.000
Pell Recipient	-0.11	-0.14	-0.07	0.02	-0.05	-5.5	.000
First Generation	-0.01	-0.04	0.03	0.02	0.00	-0.3	.756
Racially Minoritized	-0.10	-0.14	-0.07	0.02	-0.05	-5.6	.000
CDHE Index	0.02	0.02	0.03	0.00	0.27	30.7	.000
First Term	0.07	0.04	0.10	0.02	0.04	4.3	.000

N=13243
F(8,13235)=204.4*
Adjusted R^2=0.109

Table A-26. Freshmen Weighted Logistic Regression Model Predicting Next Fall Persistence

	B	SE	t	df	Sig.	Odds Ratio (95% CI)
(Constant)	0.59	0.60	0.99	13246		
CRC Section	-0.57	0.10	-5.96	13246	.000	0.56 (0.47-0.68)
Nonresident	-0.28	0.12	-2.39	13246	.017	0.76 (0.60-0.95)
STEM	-0.23	0.12	-1.92	13246	.055	0.80 (0.63-1.01)
Pell Recipient	-0.11	0.14	-0.79	13246	.432	0.90 (0.68-1.18)
First Generation	-0.06	0.14	-0.45	13246	.650	0.94 (0.72-1.23)
Racially Minoritized	-0.23	0.13	-1.81	13246	.070	0.79 (0.62-1.02)
CDHE Index	0.01	0.01	2.58	13246	.010	1.01 (1.00-1.03)
First Term	-0.32	0.11	-2.92	13246	.004	0.72 (0.58-0.90)

Weighted N=1274
Pseudo R^2=0.039

Table A-27. Weighted Least Squares Regression Model for Freshmen, Predicting Term Completed Credits

		95% CI					
	B	Lower Bound	Upper Bound	SE	Beta	t	Sig.
(Constant)	8.06	7.39	8.72	0.34			
CRC Section	-1.95	-2.08	-1.83	0.06	-0.26	-31.73	.000
Nonresident	-0.17	-0.30	-0.04	0.07	-0.02	-2.51	.012
STEM	-0.45	-0.59	-0.32	0.07	-0.06	-6.70	.000
Pell Recipient	-0.34	-0.50	-0.19	0.08	-0.04	-4.43	.000
First Generation	0.08	-0.07	0.24	0.08	0.01	1.06	.291
Racially Minoritized	-0.21	-0.35	-0.06	0.07	-0.03	-2.83	.005
CDHE Index	0.05	0.04	0.06	0.00	0.14	16.12	.000
First Term	0.37	0.25	0.49	0.06	0.05	5.99	.000

N=13246
F(8,13238)=170.3*
Adjusted R^2=0.093

Table A-28. Sophomore CRC and Non-CRC Student Demographics, Unweighted and with Inverse Propensity Weighting (IPW)

	Unweighted			With IPW		
	CRC (N=390)	Non-CRC (N=6454)	Sig.	CRC (N=717)	Non-CRC (N=13289)	Sig.
Nonresident (SE)	0.34 (0.02)	0.26 (0.01)	.000	0.34 (0.02)	0.31 (0.02)	.342
STEM (SE)	0.38 (0.02)	0.31 (0.01)	.009	0.38 (0.02)	0.36 (0.02)	.619
Pell recipient (SE)	0.29 (0.02)	0.21 (0.01)	.000	0.29 (0.02)	0.30 (0.02)	.708
First generation (SE)	0.32 (0.02)	0.25 (0.01)	.002	0.32 (0.02)	0.33 (0.02)	.746
Racially minoritized (SE)	0.25 (0.02)	0.23 (0.01)	.313	0.25 (0.02)	-	-
Census Cum GPA	2.61 (0.03)	2.94 (0.01)	.000	2.61 (0.03)	2.60 (0.03)	.691
Census Cum Completed Credits	31.7 (0.63)	31.4 (0.15)	.563	31.7 (0.63)	-	-
Census W Count	1.06 (0.09)	0.39 (0.01)	.000	1.06 (0.09)	1.23 (0.10)	.206
Cum GPA^2	7.1 (0.16)	9.0 (0.04)	.000	7.1 (0.16)	7.1 (0.16)	.734
Census Cum Completed $Credits^2$	1159.4 (40.1)	1135.3 (9.84)	.559	1159.4 (40.1)	-	-

Table A-29. Sophomore Propensity Model Predicting CRC Membership

	B	S.E.	Wald	df	Sig.	Exp(B)
Nonresident	0.44	0.12	12.88	1	.000	1.56
STEM	0.24	0.12	4.09	1	.043	1.27
Pell Recipient	0.46	0.13	12.49	1	.000	1.59
First Generation	0.24	0.13	3.51	1	.061	1.27
Cumulative GPA	1.07	0.52	4.24	1	.039	2.93
W Count	0.28	0.03	69.97	1	.000	1.33
GPA^2	-0.33	0.10	10.37	1	.001	0.72
(Constant)	-3.75	0.67	31.20	1	.000	0.02

Table A-30. Sophomores Weighted Logistic Regression Model Predicting Next Fall Persistence

	B	SE	t	df	Sig.	Odds Ratio (95% CI)
(Constant)	0.38	0.81	0.47	6138		
CRC Section	-0.30	0.17	-1.77	6138	.076	0.74 (0.53-1.03)
Nonresident	-0.29	0.21	-1.41	6138	.159	0.75 (0.50-1.12)
STEM	0.03	0.20	0.15	6138	.883	1.03 (0.70-1.51)
Pell Recipient	0.13	0.22	0.61	6138	.539	1.14 (0.75-1.74)
First Generation	0.02	0.21	0.08	6138	.934	1.02 (0.68-1.54)
Census GPA	0.38	0.75	0.51	6138	.612	1.46 (0.34-6.33)
Census W count	-0.15	0.04	-3.48	6138	.001	0.86 (0.79-0.94)
GPA^2	0.15	0.17	0.93	6138	.351	1.17 (0.85-1.61)
Census Cum Credits	0.00	0.01	0.28	6138	.783	1.00 (0.99-1.02)

Weighted N=718
Pseudo R^2=0.127

Table A-31. Weighted Least Squares Regression Model for Sophomores, Predicting Term GPA

		95% CI					
	B	Lower	Upper	SE	Beta	t	Sig.
(Constant)	2.22	1.98	2.46	0.12			
CRC Section	-0.26	-0.30	-0.22	0.02	-0.14	-12.99	.000
Nonresident	-0.09	-0.13	-0.05	0.02	-0.04	-3.99	.000
STEM	0.05	0.01	0.09	0.02	0.02	2.21	.027
Pell Recipient	-0.08	-0.13	-0.04	0.02	-0.04	-3.61	.000
First Generation	-0.06	-0.11	-0.02	0.02	-0.03	-2.82	.005
Census GPA	-0.25	-0.45	-0.05	0.10	-0.16	-2.50	.013
Census W count	-0.10	-0.11	-0.09	0.01	-0.20	-17.61	.000
GPA^2	0.19	0.15	0.23	0.02	0.62	9.70	.000
Census Cum Credits	0.00	-0.01	0.00	0.00	-0.05	-4.54	.000

N=6138
F(9,29)=339.1*
Adjusted R^2=0.331

Table A-32. Weighted Least Squares Regression Model for Sophomores, Predicting Term Completed Credits

		95% CI					
	B	Lower	Upper	SE	Beta	t	Sig.
(Constant)	8.95	7.85	10.05	0.56			
CRC Section	-2.32	-2.50	-2.14	0.09	-0.29	-25.63	.000
Nonresident	-0.20	-0.40	0.00	0.10	-0.02	-2.00	.045
STEM	0.27	0.08	0.45	0.10	0.03	2.78	.005
Pell Recipient	-0.07	-0.28	0.14	0.11	-0.01	-0.68	.496
First Generation	-0.41	-0.62	-0.21	0.10	-0.05	-4.00	.000
Census GPA	1.73	0.82	2.63	0.46	0.26	3.75	.000
Census W count	-0.47	-0.52	-0.42	0.03	-0.22	-18.56	.000
GPA2	0.03	-0.15	0.20	0.09	0.02	0.28	.780
Census Cum Credits	0.00	-0.01	0.01	0.00	0.00	0.15	.882

N=6138
F(9,6129)=216.4*
Adjusted R^2=0.24

Table A-33. Junior CRC and Non-CRC Student Demographics, Unweighted and with Inverse Propensity Weighting (IPW)

	Unweighted			With IPW		
	CRC (N=189)	Non-CRC (N=2793)	Sig.	CRC (N=717)	Non-CRC (N=13289)	Sig.
Nonresident (SE)	0.29 (0.03)	0.27 (0.01)	.528	0.29 (0.03)	-	-
STEM (SE)	0.46 (0.03)	0.36 (0.01)	.004	0.46 (0.03)	0.42 (0.04)	.488
Pell recipient (SE)	0.34 (0.03)	0.24 (0.01)	.007	0.34 (0.03)	.34 (0.04)	.938
First generation (SE)	0.36 (0.03)	0.27 (0.01)	.012	0.36 (0.03)	0.33 (0.04)	.549
Racially minoritized (SE)	0.31 (0.03)	0.21 (0.01)	.002	0.31 (0.03)	0.30 (0.04)	.900
Census Cum GPA	2.76 (0.04)	2.93 (0.01)	.000	2.76 (0.04)	2.73 (0.04)	.688
Census Cum Completed Credits	51.1 (1.69)	50.8 (0.42)	.881	51.1 (1.69)	-	-
Census W Count	1.16 (0.14)	0.55 (0.02)	.000	1.16 (0.14)	1.34 (0.15)	.388
Cum GPA^2	7.90 (0.22)	9.0 (0.07)	.000	7.90 (0.22)	7.76 (0.23)	.650
Census Cum Completed $Credits^2$	3143.3 (164.0)	3077.6 (39.7)	.677	3143.3 (164.0)	-	-

Table A-34. Junior Propensity Model Predicting CRC Membership

	B	S.E.	Wald	df	Sig.	Exp(B)
STEM	0.40	0.17	5.84	1.00	.016	1.49
Pell Recipient	0.45	0.19	5.88	1.00	.015	1.57
First Generation	0.11	0.19	0.34	1.00	.557	1.12
Racially Minoritized	0.38	0.19	4.09	1.00	.043	1.46
Census Cum GPA	1.90	1.06	3.21	1.00	.073	6.68
Census W Count	0.26	0.05	32.31	1.00	.000	1.30
Census GPA^2	-0.40	0.19	4.28	1.00	.039	0.67
(Constant)	-5.40	1.44	14.04	1.00	.000	0.01

Table A-35. Junior Weighted Logistic Regression Model Predicting Next Fall Persistence

	B	SE	t	df	Sig.	Odds Ratio (95% CI)
(Constant)	-0.52	1.88	-0.28	2587		
CRC Section	-0.41	0.25	-1.63	2587	.104	0.66 (0.41-1.09)
Nonresident	0.21	0.30	0.70	2587	.486	1.23 (0.68-2.22)
STEM	0.64	0.28	2.32	2587	.021	1.90 (1.10-3.28)
Pell Recipient	-0.20	0.35	-0.59	2587	.558	0.82 (0.41-1.61)
First Generation	0.21	0.33	0.62	2587	.536	1.23 (0.64-2.36)
Racially Minoritized	0.07	0.35	0.19	2587	.852	1.07 (0.54-2.11)
Census GPA	0.89	1.55	0.57	2587	.569	2.42 (0.12-50.9)
Census Cum Credits	0.04	0.03	1.22	2587	.223	1.04 (0.98-1.10)
Census W count	-0.17	0.07	-2.33	2587	.020	0.85 (0.74-0.97)
GPA^2	0.01	0.29	0.03	2587	.980	1.01 (0.57-1.78)

Weighted N=333
Pseudo R^2=0.166

Table A-36. Weighted Least Squares Regression Model for Juniors, Predicting Term GPA

		95% CI					
	B	Lower	Upper	SE	Beta	t	Sig.
(Constant)	1.04	0.89	1.19	0.08			
CRC Section	-0.25	-0.33	-0.16	0.04	-0.09	-5.80	.000
Nonresident	-0.10	-0.16	-0.04	0.03	-0.05	-3.25	.001
STEM	0.05	0.00	0.11	0.03	0.03	1.81	.070
Pell Recipient	-0.02	-0.09	0.05	0.03	-0.01	-0.55	.585
First Generation	-0.04	-0.11	0.02	0.03	-0.02	-1.25	.211
Racially Minoritized	0.00	-0.07	0.07	0.03	0.00	-0.03	.973
Census GPA	0.67	0.63	0.71	0.02	0.47	31.14	.000
Census Cum Credits	0.00	0.00	0.00	0.00	0.02	1.13	.260
Census W count	-0.06	-0.07	-0.04	0.01	-0.12	-7.76	.000

N=3449
F(9, 3440)=148.6*
Adjusted R^2=0.278

Table A-37. Weighted Least Squares Regression Model for Juniors, Predicting Term Completed Credits

		95% CI					
	B	Lower	Upper	SE	Beta	t	Sig.
(Constant)	8.38	7.73	9.04	0.34			
CRC Section	-1.78	-2.15	-1.42	0.19	-0.15	-9.55	.000
Nonresident	-0.01	-0.29	0.26	0.14	0.00	-0.09	.925
STEM	-0.01	-0.27	0.24	0.13	0.00	-0.10	.918
Pell Recipient	-0.39	-0.68	-0.09	0.15	-0.04	-2.55	.011
First Generation	0.01	-0.29	0.31	0.15	0.00	0.07	.947
Racially Minoritized	0.35	0.05	0.64	0.15	0.04	2.30	.021
Census GPA	1.72	1.53	1.91	0.10	0.30	18.15	.000
Census Cum Credits	0.01	0.01	0.02	0.00	0.09	5.04	.000
Census W count	-0.35	-0.41	-0.28	0.03	-0.17	-10.22	.000

N=3450
F(9,3441)=82.8*
Adjusted R^2=0.176