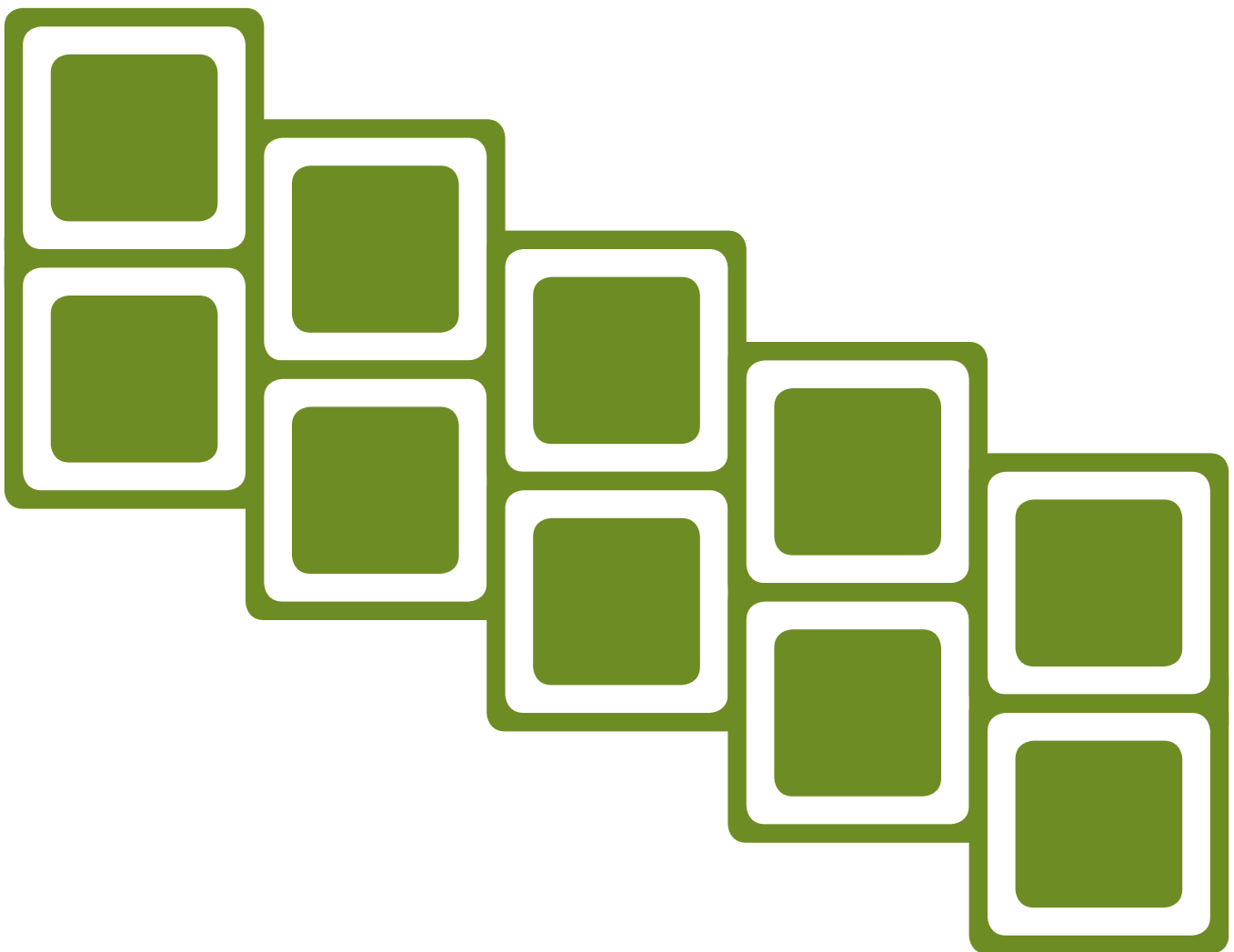


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Impact of Transient Credit on Undergraduate Students and Their Institutions

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Abstract

In this paper, we report on archival and survey research at Rutgers, The State University of New Jersey, examining the correlates and consequences of transient summer credit (summer credit earned at other institutions and transferred back to a student's home university) for students and institutions. We also provide data-based recommendations for effective transient credit policy and the successful marketing and delivery of summer session programs that serve the academic needs of degree-seeking students.

Every summer, matriculated undergraduate students take courses at other institutions, then transfer “transient credits” back to their home university. We believe that our students’ academic goals would be better served by taking their courses at their home institution; we know that the loss of tuition revenue for those credits represents a significant loss for our university. But really, we know very little about the causes or consequences of transient credit for students or their institutions.

At Rutgers, The State University of New Jersey, we have good reason to look for answers to these questions. Rutgers is a leading national research university and the state of New Jersey’s preeminent, comprehensive public institution of higher education, with more than 69,000 students and 22,000 faculty and staff on our Camden, Newark, and New Brunswick, NJ, campuses and around the world. But in the summers of 2006–2012, 10,193 of our undergraduate students chose to take courses elsewhere, at a cost of more than \$16.56 million in lost tuition revenue to the institution.

A survey of the professional literature indicated that although there has been some research comparing academic year students with summer session students (Smith & Read, 2013) and looking at why students take summer session courses (Fish & Kowalik, 2009), there has been little investigation into the question of why matriculated students study at other institutions in summer. William A. Wright studied the reasons reported by students at the University of Maryland, Baltimore County, for seeking approval to take courses elsewhere in the summer of 1972 (Wright, 1973). He found that the most frequently cited reasons were that the other institution was “close to home” and offered courses that were not offered at the home institution, that summer. Wright noted that institutions where summer courses were attended were also less expensive and offered courses in the evening. Forty-two percent of these transient-credit courses were taken at community colleges.

We found no published research on the impact of transient credit on students and institutions.

With support from the Theresa Neil Memorial Research Fund, we undertook archival and survey research comparing matriculated undergraduate Rutgers students who took courses at Rutgers, with Rutgers students who took courses at other institutions in the summers of 2006 through 2012. The questions we posed were:

- Who takes summer courses at other institutions?
- Why do students take summer courses at other institutions?
- What are the effects of taking summer courses elsewhere on students’ academic performance and graduation rate?
- What is the financial impact on the home institution?
- How can institutions use these findings to improve their summer programs and enhance summer enrollment?

Method

Archival Research

The archival portion of this study was divided into two phases. In the first phase, we mined data from the Rutgers student records database; in the second, we selected a subset of student records based upon our phase-one analysis. Participants in the first phase of the archival portion of this study were drawn from the 57,238 matriculated Rutgers University students who were registered at Rutgers in the spring before and the fall after summers 2006–2012, and who took a summer course at Rutgers University or another college/university in summer sessions 2006–2012. Of these, 5,304 students who took summer courses at both Rutgers and an outside institution were excluded from our analysis, to better distinguish the comparison groups from one another. Because only courses completed with a final grade of “C” or better could be transferred back to Rutgers from other institutions, we further restricted our study population to students who had earned a “C” or better in their Rutgers summer courses, leaving 44,832 who had taken courses at Rutgers (Rutgers Summer students) and 4,889 who had taken courses elsewhere (Transient Summer students).

In phase two of the archival research, our subjects were the subset of Rutgers Summer and Transient Summer students who, in summer sessions 2006–2012, took any of the 10 prerequisite courses most often transferred back to Rutgers and subsequently took the next-step course at Rutgers. In all, the grades of 5,287 Rutgers Summer and 524 Transient Summer students were analyzed.

Survey Research

We invited 42,159 students who took courses in summers 2006–2012 at either Rutgers or another institution and for whom we had active email addresses to participate in a 26-item electronic survey about their summer session experience (see Appendix). The electronic invitation to participate was sent three times to each student. A total of 1,924 students responded to the survey, yielding a 4.6% response rate.

Procedure

Archival Research

After securing permission from the Rutgers Institutional Research Board to conduct this study, we worked with the Rutgers Office of Institutional Research to mine student and course data from existing university databases for summer sessions 2006–2012. In all, data for more than 150 variables were extracted from Rutgers Summer and Transient Summer students’ records, including: students’ gender, race, credits earned, and GPAs preceding and following their summer registration; the location and identity of transient schools; the physical distance between each student’s

home address and Rutgers; and the physical distance between their home address and the transient school, where applicable.

The original data set was manipulated multiple ways to ensure analyses were conducted properly. An unduplicated headcount file (each student counted only once despite being enrolled in multiple summer years) was created to analyze fixed variables that did not change throughout the years investigated in this study, such as: race, citizenship, SAT scores, graduating GPA, graduating credits, and gender. Another file was created in which the subjects were unduplicated by year to run analyses for variables that change after each term, such as: FT/PT status, cumulative GPA, age, etc. In this latter file, students who took summer courses in multiple summer terms were included multiple times; however, they were included only one time for each year they took a summer course.

These data were analyzed using SPSS (version 23) to identify factors that distinguish Rutgers Summer students from Transient Summer students, and to assess the academic and financial impact of transient credit on students and their home university. The z -test for equality of proportions was used to test whether the demographic breakdown was proportional between the two groups. Independent samples t -tests were also run to determine whether there were statistical differences between the means of the two groups. In an effort to minimize the possibility of Type I error, or of obtaining false-positive results due to using statistical tests simultaneously, the Bonferroni correction was used to adjust the p value to equal 0.0488. This adjusted p value is just under the sought-after 0.05 level.

In the second phase of the archival portion of this study, we reviewed Transient Summer student course data to identify the 10 prerequisites (introductory courses with clear next-step courses) most often taken at other institutions in summers 2006–2012 and transferred back to Rutgers: Precalculus College Math, Calculus for Math & Physics I, Calculus for Math & Physics II, Calculus I, Intermediate Algebra, General Biology I, General Chemistry I, General Chemistry II, Organic Chemistry I, and General Physics I.

We then identified the Transient Summer and Rutgers Summer students who took these courses in summers 2006–2012, earning at least a letter grade of “C.” Next, these students’ Rutgers grades in the subsequent next-step courses were identified and compared across the Transient Summer and Rutgers Summer groups. For example, if students took General Biology I in the summer, letter grades received in General Biology II were compared.

The grade (A–D and F) the students received the first time they took the advanced course at Rutgers was recorded. If the student received a “W” grade (withdrawal), then took the advanced course again, earning a letter grade, the letter grade was included in our analysis. Students who only had “W” grades, took the advanced course at a transient school, or did not take the advanced course were omitted from the analysis. Letter grades were then converted to their numerical equivalent and analyzed. Rutgers University uses a numerical equivalent for letter grades as follows: A = 4.0; B+ = 3.5; B = 3.0; C+ = 2.5; C = 2.0; D = 1.0; and F = 0.0.

Grades received in the subsequent advanced courses were compared to assess differences in academic performance between Rutgers Summer and Transient Summer students. In all, a total of 5,811 grades in next-step courses were analyzed in this phase of the archival research.

Survey Research

After we had analyzed the archival data, we sent email invitations to all Rutgers Summer and Transient Summer students for whom we had active email addresses to complete the Transient Credit Summer Session Student Survey. Respondents were offered the opportunity to participate in a draw for \$500 and \$100 cash cards to thank them for their assistance with the study.

Findings

Archival Data

Demographic profile. An independent samples *t*-test was conducted to compare the age of the Rutgers Summer and Transient Summer students. There was a statistically significant difference between the ages of the two groups: Rutgers Summer students were significantly older ($M = 22.79$, $SD = 9.49$) than the Transient summer students ($M = 20.72$, $SD = 3.074$); $t(70,636) = 15.23$, $p = .001$.

A *z*-test for equality of proportions was run between the Rutgers Summer and Transient Summer students. This test identified several statistically significant differences in demographic characteristics. As illustrated in Table 1, the Transient group had a higher proportion of female students as well as a higher proportion of White (non-Hispanic) students. Rutgers Summer students had a significantly higher proportion of male students and Black (non-Hispanic), Hispanic (non-Puerto Rican), Puerto Rican, Other Racial/Ethnic Group, and Asian-Only students. We also found significant differences between the groups in citizenship status: the Transient group included a significantly larger proportion of U.S. citizens, while the Rutgers group included a larger proportion of non-citizen, permanent-resident students. Table 1 lists the demographic differences between the two groups.

Table 1: Z-Test for Equality of Proportions in Demographic Profiles

Variable	RUTrans		
		<i>n</i>	% within RUTrans
Gender			
Male	Rutgers	21,173	47.2
	Transient	2,126	43.5
Female	Rutgers	23,659	52.8
	Transient	2,763	56.5
Racial/Ethnic Code			
American Indian or Alaskan	Rutgers	74	0.2
	Transient	5	0.1
Black, non-Hispanic	Rutgers	5,646	13.1
	Transient	365	7.7
Hispanic, non-Puerto Rican	Rutgers	3,957	9.2
	Transient	317	6.7
Puerto Rican	Rutgers	1,438	3.3
	Transient	129	2.7
White, non-Hispanic	Rutgers	19,714	45.6
	Transient	2,970	62.8
Other racial/ethnic group	Rutgers	528	1.2
	Transient	33	0.7
Asian only	Rutgers	11,626	26.9
	Transient	893	18.9
Native Hawaiian or Pacific Islander	Rutgers	215	0.5
	Transient	21	0.4
Citizenship			
U.S. citizen	Rutgers	39,322	88.4
	Transient	4,489	92.3
Non-citizen, permanent resident	Rutgers	4,374	9.8
	Transient	278	5.7
Non-citizen, non-permanent resident	Rutgers	773	1.8
	Transient	94	1.9

Note: Figures are bold and in green if column proportions differ significantly at the $p < .05$ level.

Geographic profile. An independent *t*-test conducted to compare the distance (in miles) between students’ home addresses and their affiliated Rutgers campus revealed that Transient Summer students lived significantly farther from their Rutgers campus ($M = 66.25$ miles, $SD = 247.14$ miles) than their Rutgers Summer counterparts ($M = 39.59$ miles, $SD = 175.21$ miles) $t(29,265) = -8.23, p = .001$, and an average of just 17.97 miles from the institution they attended in summer.

Institutions attended. The great majority of Transient Summer students attended two-year community colleges in the summer:

- 5% at out-of-state community colleges
- 83% at New Jersey community colleges

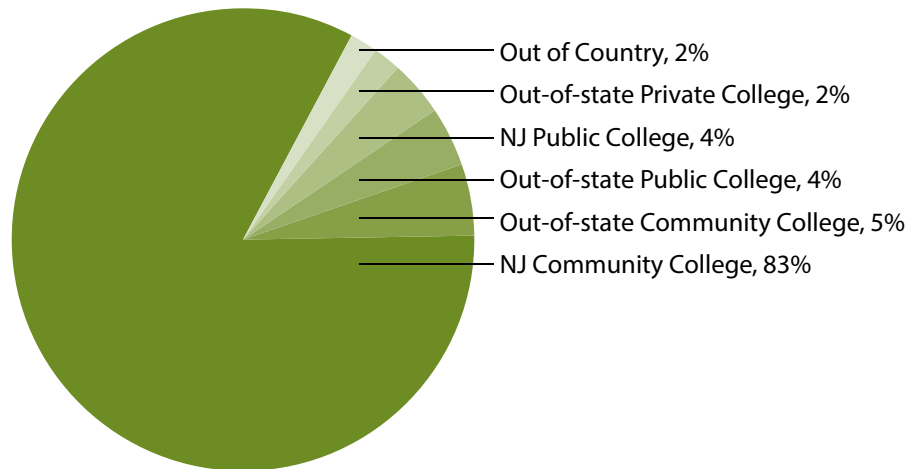


Figure 1: Institutions Attended by Transient Summer Students

Academic progress and performance. Results of an independent samples *t*-test showed a number of significant differences between the academic profiles of the two groups. Members of the Transient Summer group entered Rutgers with higher SAT math, verbal, and composite scores. Differences in SAT math and verbal scores were significant at $p < .01$; differences in SAT composite scores were significant at $p < .05$ (see Table 2 for more information).

Table 2: *T*-Test Shows Significant Differences between Academic Profiles

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>
SAT Math Scores				
Rutgers	33,928	585	9.53	-2.34*
Transient	4,267	590	8.14	

Variable	N	M	SD	t
SAT Verbal Scores				
Rutgers	33,928	551	9.00	-4.58*
Transient	4,267	557	7.64	
SAT Composite Scores				
Rutgers	33,928	1,136	16.67	-3.83**
Transient	4,267	1,147	13.44	

* Significant at $p < .01$.
 ** Significant at $p < .05$.

An independent samples *t*-test was used to analyze the academic progress and performance of participants in both groups at three points during their undergraduate study: at the end of the spring semester (before the summer term), at the end of the summer term, and at the end of the fall semester that followed. There was a significant difference across multiple variables for the two groups:

- Rutgers Summer students had more degree credits at all three time points than did the Transient group.
- The Transient Summer group had higher cumulative GPAs than did the Rutgers Summer group.

All of these differences were statistically significant (see Table 3).

Table 3: *T*-Test of Academic Progress and Performance

Variable	N	M	SD	t
Degree Credits in Spring Prior				
Rutgers	65,475	74.59	30.54	40.30*
Transient	4,889	56.39	28.68	
Degree Credits Immediately Following				
Rutgers	65,499	79.93	30.77	44.87**
Transient	4,889	59.56	28.66	
Degree Credits in Following Fall				
Rutgers	65,508	92.50	30.87	7.82**
Transient	4,889	75.26	29.27	
Cumulative GPA in Spring Prior				

Variable	N	M	SD	t
Rutgers	65,694	2.97	0.58	-10.75**
Transient	4,883	3.06	0.53	
Cumulative GPA Immediately Following				
Rutgers	65,734	3.00	0.54	-7.13*
Transient	4,883	3.06	0.53	
Cumulative GPA in Following Fall				
Rutgers	65,740	3.01	0.54	-8.76*
Transient	4,889	3.08	0.52	

* Significant at $p < .05$.
 ** Significant at $p < .01$.

Graduation profile. An independent samples t -test showed that the Transient Summer students graduated with a significantly higher GPA than Rutgers Summer students. There was no significant difference between the two groups in cumulative graduating degree credits (see Table 4).

Table 4: T -Test of Graduation Profile

Variable	N	M	SD	t
Graduating GPA				
Rutgers	34,640	3.16	0.45	-11.29*
Transient	3,672	3.26	0.41	
Graduating Degree Credits				
Rutgers	34,640	131.18	13.43	7.79
Transient	3,672	129.38	11.75	

* Significant at $p < .01$.

An independent samples t -test showed that the Transient Summer group graduated significantly sooner ($M = 4.48$ years, $SD = 1.001$) than the Rutgers Summer group ($M = 5.11$ years, $SD = 1.568$); $t(34,808) = 23.421$, $p = .017$. Over 69% of the Transient Summer cohort, compared with only 46% of the Rutgers Summer cohort, graduated within four years.

This time-to-graduation difference is not due to summer activity: Transient Summer students actually applied significantly fewer summer credits from other institutions (3.17 credits, on average) than Rutgers Summer students earned in summer (5.38 credits, on average) toward their degrees ($p < .01$) (see Table 5).

Table 5: T-Test of Average Degree Credits Earned in Summers 2006–2012

Variable	N	M	SD	t
Degree Credits in Summer				
Rutgers	65,749	5.38	2.78	55.32*
Transient	4,889	3.17	0.99	

*Significant at $p < .01$.

A more likely explanation for the Transient Summer students’ shorter time to graduation is the significantly greater proportion of full-time students in the Transient Summer group, in both the spring prior to and the fall immediately following their summer courses (see Table 6).

Table 6: Z-Test for Equality of Proportions in Student Status

Variable	RUTrans	
	n	% within RUTrans
FT/PT Status in Spring Prior		
Full time	Rutgers	59,759 90.9
	Transient	4,777 97.7
Part time	Rutgers	5,989 9.1
	Transient	112 2.3
FT/PT Status in Following Fall		
Full time	Rutgers	58,709 89.3
	Transient	4,749 97.1
Part time	Rutgers	7,032 10.7
	Transient	140 2.9

Note: Figures are bold and in green if column proportions differ significantly at the $p < .05$ level.

On average, Transient Summer students took 15.5 credits per academic year semester, compared to the Rutgers Summer students’ average of 12.3 credits per semester.

Subsequent performance in advanced courses. In order to determine the academic consequences of taking transient credit, we identified the 10 foundational courses most frequently transferred back to Rutgers, and the next-step advanced courses that follow them.

Thirty percent (756) of the 2,521 Transient Summer students took both prerequisite and advanced courses during the same or a different summer session at their transient institutions (rather than

taking the advanced course later, at Rutgers). Another 47% (1,175) did not take the advanced course following the prerequisite, at either an outside school or Rutgers University. These students were omitted from our analysis.

The remaining 23% (590) of the Transient Summer students took the subsequent advanced course at Rutgers during the academic year, for a total of 524 final grades (“W” grades were not included in our analysis). The Rutgers Summer subset earned 8,699 grades, of which 5,287 “non-W” grades were analyzed.

These student subsets were not randomly selected, and so we returned to our archival demographic and academic data to determine whether these subgroups were representative of the larger subject pool: that is, whether they differed from one another in the same ways that the larger Rutgers Summer and Transient Summer student groups differed. Differences between these advanced grade subgroups and the larger Rutgers Summer and Transient Summer student groups are summarized in the charts below.

These subgroups differed demographically in the same ways that the larger Rutgers Summer and Transient Summer student groups did, in terms of age, race/ethnicity, and citizenship. Rutgers Summer students were significantly older than the Transient Summer students (nearly 22 to nearly 20 years of age; see Table 7).

Table 7: T-Test of Age of All Summer Students and Students Taking Subsequent Advanced Courses, Comparison

Variable	All				Advanced Course Subgroup			
	N	M	SD	t	N	M	SD	t
Age								
Rutgers	65,749	22.79	9.45	9.49*	7,910	21.86	2.81	9.08**
Transient	4,889	20.72	3.07		505	19.71	1.37	

* Significant at $p < .01$.

** Significant at $p < .05$.

Racial and ethnic differences between the subgroups were weaker but in the same direction as between the larger groups. Table 8 shows that only two races (white non-Hispanic and Asian) showed statistically significant differences between the advanced-grades subgroups.

However, gender differences between these advanced-grades subgroups were significant and contrary to the differences between the larger Rutgers Summer and Transient Summer groups. In the advanced-grades subgroups, there was a higher proportion of male students in the Transient Summer group than in the Summer Rutgers group, and a higher proportion of female students in the Rutgers Summer group than in the Transient Summer group.

Table 8: Z-Test for Equality of Proportions in Demographic Profiles of All summer Students and Students Taking Subsequent Advanced Courses, Comparison

Variable		All		Advanced Course Subgroup	
		<i>n</i>	% within RUTrans	<i>n</i>	% within RUTrans
Gender					
Male	Rutgers	21,173	47.2	3,642	46.0
	Transient	2,126	43.5	280	55.4
Female	Rutgers	23,659	52.8	4,268	54.0
	Transient	2,763	56.5	505	44.6
Racial/Ethnic Code					
American Indian or Alaskan	Rutgers	74	0.2	3	0.0
	Transient	5	0.1	0	0.0
Black, non-Hispanic	Rutgers	5,646	13.1	1,044	13.2
	Transient	365	7.7	53	10.5
Hispanic, non-Puerto Rican	Rutgers	3,957	9.2	700	8.8
	Transient	317	6.7	42	8.3
Puerto Rican	Rutgers	1,438	3.3	195	2.5
	Transient	129	2.7	13	2.6
White, non-Hispanic	Rutgers	19,714	45.6	2,371	30.0
	Transient	2,970	62.8	281	55.6
Other racial/ethnic group	Rutgers	528	1.2	76	1.0
	Transient	33	0.7	4	0.8
Asian only	Rutgers	11,626	26.9	3,138	39.7
	Transient	893	18.9	93	18.4
Native Hawaiian or Pacific Islander	Rutgers	215	0.5	37	0.5
	Transient	21	0.4	3	0.6
Citizenship					
U.S. citizen	Rutgers	39,322	88.4	6,848	87.0
	Transient	4,489	92.3	466	92.6
Non-citizen, permanent resident	Rutgers	4,374	9.8	893	11.3
	Transient	278	5.7	29	5.8
Non-citizen, non-permanent resident	Rutgers	773	1.8	128	1.6
	Transient	94	1.9	8	1.6

Note: Figures are bold and in green if column proportions differ significantly at the $p < .05$ level.

The advanced-grades subgroups showed the same differences in student status as the full Rutgers Summer and Transient Summer student groups. Although the vast majority of students were full time in the spring before and the fall following the summer terms under study, the Rutgers Summer groups included a higher percentage of part-time students than did the Transient Summer groups at both time points (see Table 9).

Table 9: Z-Test for Equality of Proportions in Status of All Summer Students and Students Taking Subsequent Advanced Courses, Comparison

Variable		All		Advanced Course Subgroup	
		<i>n</i>	% within RUTrans	<i>n</i>	% within RUTrans
FT/PT Status in Spring Prior					
Full time	Rutgers	59,759	90.9	7,658	96.8
	Transient	4,777	97.7	502	99.4
Part time	Rutgers	5,989	9.1	252	3.2
	Transient	112	2.3	3	0.6
FT/PT Status in Following Fall					
Full time	Rutgers	58,709	89.3	7,590	96.0
	Transient	4,749	97.1	502	99.4
Part time	Rutgers	7,032	10.7	319	4.0
	Transient	140	2.9	3	0.6

Note: Figures are bold and in green if column proportions differ significantly at the $p < .05$ level.

Regarding academic factors, the advanced-grades subgroups differed from one another in the same way as the larger Rutgers Summer and Transient Summer groups did on graduating GPAs (Transient Summer students' graduating GPAs were higher than those of Rutgers Summer students) and on degree credits accrued in the spring before, immediately following the summer course, and the fall following the summer terms studied (Rutgers Summer students had significantly more degree credits at all three time points).

However, among the advanced-grades subgroups, some patterns were different: Rutgers Summer students had significantly higher SAT math and SAT composite scores (than did Transient Summer students), and there was no statistically significant difference between groups on SAT verbal scores (see Table 10).

Table 10: T-Test of Academic Profile and Progress of All Summer Students and Students Taking Subsequent Advanced Courses, Comparison

Variable	All				Advanced Course Subgroup			
	N	M	SD	t	N	M	SD	t
Graduating GPA								
Rutgers	34,640	3.16	0.45	-11.29*	2,958	3.06	0.45	-1.65*
Transient	3,672	3.26	0.41		257	3.13	0.40	
SAT Math								
Rutgers	33,928	585	9.53	-2.34*	3,809	601	8.46	1.83**
Transient	4,267	590	8.14		461	592	7.32	
SAT Verbal								
Rutgers	33,928	551	9.00	-4.58*	3,809	554	8.23	0.22
Transient	4,267	557	7.64		461	553	7.54	
SAT Composite Scores								
Rutgers	33,928	1136	16.67	-3.83**	3,809	1156	14.75	1.18**
Transient	4,267	1147	13.44		461	1145	12.69	
Degree Credits in Spring Prior								
Rutgers	65,475	74.59	30.54	40.30**	7,891	62.9	31.76	17.97**
Transient	4,889	56.39	28.68		505	37.2	17.77	
Degree Credits Immediately Following								
Rutgers	65,508	92.50	30.87	7.82*	7,894	68.8	31.75	18.66**
Transient	4,889	75.26	29.27		397	39.9	15.26	
Degree Credits in Following Fall								
Rutgers	33,928	1136	16.67	-3.83**	7,896	81.6	32.00	18.42**
Transient	4,267	1147	13.44		505	55.1	18.56	

* Significant at $p < .01$.

** Significant at $p < .05$.

Overall, these advanced-grades subgroups differed in most of the ways that the larger Rutgers Summer and Transient Summer groups did, with a few exceptions: gender, and some racial/ethnic distributions and SAT scores.

Turning to a comparison of these two subgroups' academic performance in subsequent advanced courses taken at Rutgers, we found that Rutgers Summer students performed significantly better ($M = 2.15$, "C" letter grade equivalent) than Transient Summer students ($M = 1.70$, D letter grade equivalent) in their subsequent advanced courses ($p = .001$). Even

though Rutgers Summer students had lower GPAs throughout their university careers, they outperformed Transient Summer students on subsequent advanced courses by a full letter grade. While these are not exemplary mean grades, this finding has important academic and financial implications for our students.

Financial Impact on the Institution

Although providing opportunities for students to make progress toward their academic goals is the primary mission for university summer sessions, another important objective is generating revenue to support the academic mission of the institution. We found that Rutgers University lost at least \$16.56 million in transient credit tuition revenue to outside institutions during the summers of 2006–2012.

During this same period, Rutgers received \$27.98 million in tuition revenue from visiting students, more than compensating for the transient registration loss. Figure 2 displays a chart of the financial impact of transient and visiting student registrations by year.

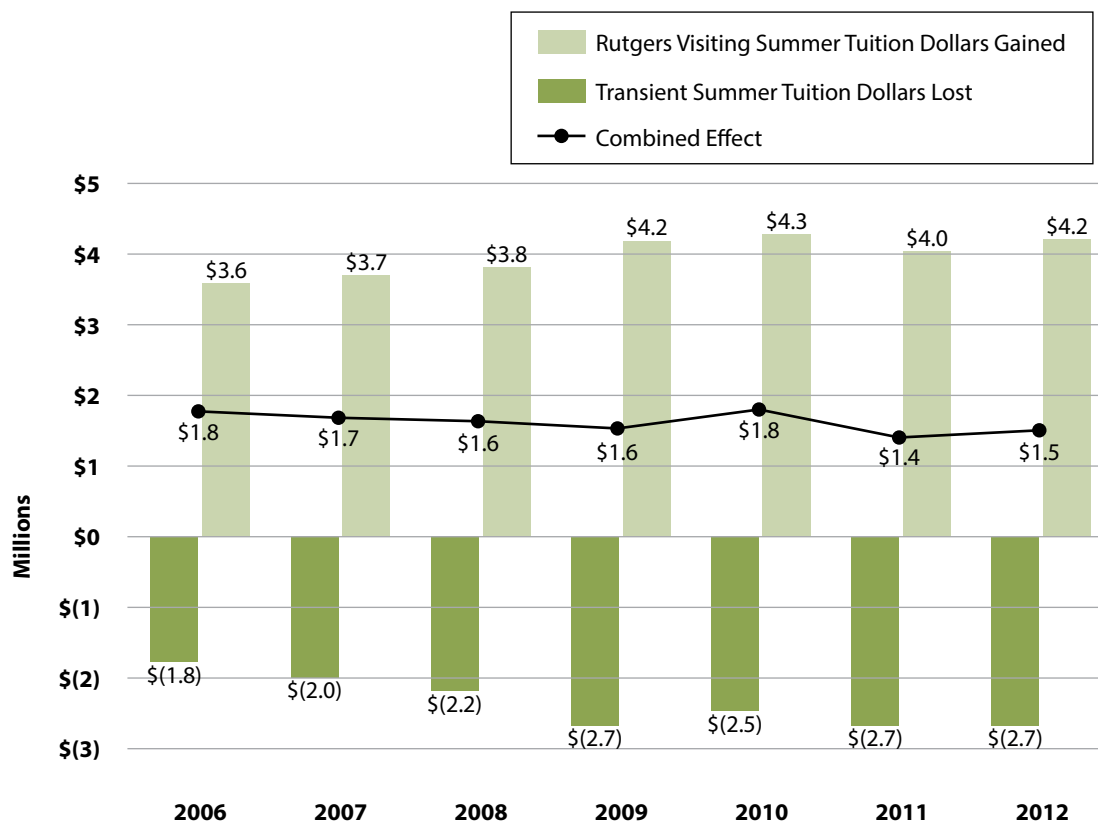


Figure 2: Financial Impact of Transient Credit and Visiting Summer Tuition

Survey Data

Respondents. In the survey phase of the study, 1,924 Rutgers Summer and Transient Summer students responded to an online survey about their summer experience.

Program information. When asked how they had learned about the summer program they attended, a significantly greater proportion of Transient Summer students reported that they “knew someone who had taken a summer course there” and “used an Internet search engine” than did the Rutgers Summer group. A significantly greater proportion of Rutgers Summer students than Transient Summer students stated that they “received an email” or that the program “was recommended by their academic adviser” (see Table 11 for details).

Table 11: How Students Learned About the Institution’s Summer Session, by Student Group

	Rutgers Summer Students		Transient Summer Students	
	N	%	N	%
Visited the institution’s summer website	291	30.3	104	32.7
Knew someone who had taken a summer course there	238	24.8	101	31.8
Received an email message	215	22.4	20	6.3
Received a print brochure or postcard	83	8.6	25	7.9
Used an Internet search engine	45	4.7	46	14.5
Saw an advertisement online	16	1.7	6	1.9
Common knowledge*	14	1.5	1	0.3
Academic advisor*	14	1.5	0	0.0
Had to take prerequisites for program*	11	1.1	0	0.0
Current student at school*	9	0.9	0	0.0
Online schedule of classes*	4	0.4	1	0.3
EOF counselor*	3	0.3	0	0.0
Professor*	3	0.3	1	0.3
WebReg*	2	0.2	0	0.0
Word of mouth*	2	0.2	0	0.0
Institution employee*	2	0.2	0	0.0
Friend*	2	0.2	0	0.0
High school counselor*	1	0.1	0	0.0
Ernest Mario School of Pharmacy*	1	0.1	1	0.3

* Open-ended responses provided by student.

Note: Figures are bold and in green if column proportions differ significantly at the $p < .05$ level.

	Rutgers Summer Students		Transient Summer Students	
	N	%	N	%
Office for Diversity and Academic Success in the Sciences*	1	0.1	0	0.0
Saw table at the Rutgers Athletic Center basketball game*	1	0.1	0	0.0
Department*	1	0.1	3	0.9
Study abroad*	0	0.0	3	0.9
Close to home*	0	0.0	3	0.9
Heard from presenters in class*	0	0.0	1	0.3
Cross registration*	0	0.0	1	0.3
Total	961	100.0	318	100.0

* Open-ended responses provided by student.

Note: Figures are bold and in green if column proportions differ significantly at the $p < .05$ level.

Program selection. Transient Summer students were asked to rate the importance of a number of factors in their decision to take summer courses outside of their home university, from ‘1’ (*very important*) to ‘5’ (*very unimportant*). The three top-rated factors were:

- Tuition and fees were lower than my home institution ($M = 1.56, SD = 0.942$)
- Located closer to my home than my home institution ($M = 1.67, SD = 1.043$)
- Offered course not available at my home institution ($M = 2.62, SD = 1.437$)

The results are shown in Table 12.

Table 12: Student Reasons for Taking Summer Courses at Another Institution

Reason	Ratings					Mean Rating
	Very Important 1	Somewhat Important 2	Neutral 3	Somewhat Unimportant 4	Very Unimportant 5	
Offered course not available at my home institution	162	87	134	41	88	2.62
Located closer to my home than my home institution	322	96	67	10	21	1.67
Tuition and fees were lower than at my home institution	348	88	61	9	13	1.56

Reason	Ratings					Mean Rating
	Very Important 1	Somewhat Important 2	Neutral 3	Somewhat Unimportant 4	Very Unimportant 5	
I thought I could earn a higher grade than at my home institution	131	121	135	49	79	2.66
I am interested in attending this college or university in the future	51	43	135	58	226	3.71
I have attended this college or university in the past	48	54	139	57	214	3.65
Other	35	10	51	4	17	2.64

Discussion

Who takes summer courses at other institutions?

Rutgers students who take summer courses at other institutions, then transfer them back to their home university, tend disproportionately to be younger, female, white U.S. citizens taking courses full time, who have better grades and stronger SAT scores and live farther from the Rutgers campus than those who take courses at Rutgers in summer.

The finding that the Rutgers Summer group is academically weaker than the Transient Summer group may be due in part to the fact that students on academic probation at Rutgers are required to take summer courses at their own institution to bring up their low GPAs.

Why do students take summer courses at other institutions?

Several factors impact the choice to take summer courses at other institutions.

Cost. Rutgers student survey respondents told us that students take courses at other institutions because they tend to be less expensive, and the archival data support their impressions. Eighty-three percent of all transient credits represent courses taken at in-state community colleges, where tuition and fees are significantly lower than at Rutgers. For example, a three-credit Rutgers School of Arts and Sciences course taken in summer 2016 at Rutgers would cost \$1,244.75, including tuition and fees; the same course at Middlesex Community College (the community college nearest to the Rutgers – New Brunswick campus) would cost just \$427.50, including tuition and fees—a little more than a third of the Rutgers price.

Location. Student survey respondents told us that they take courses at other institutions because they are geographically more convenient – and the archival data support these survey results. On

average, Transient Summer students travel just 17.97 miles each way to other institutions—much less than the average 66.25 miles to their Rutgers campus. By comparison, Rutgers Summer students live an average of 38.58 miles from their home campus. Students who go elsewhere tend to live farther from their home campus and study in summer at institutions that are much closer to their homes.

Course availability. When asked to rate the importance of various factors in their choice to take a summer course at another institution, Transient Summer students chose “the offered course was not available at my home campus” as their #3 response. We were surprised that students ranked availability among their top factors in choosing another institution, so we did a quick check on the top five courses transferred back to Rutgers. We found that there were from eight to 72 available seats at Rutgers, on average, in the top five courses transferred back during each summer from 2006 to 2012 (see Table 13).

Table 13: Average Annual Seat Availability in Top Five Transient Courses in Summers 2006–2012

Course	Seats
General Chemistry II	72
Introduction to Macroeconomics	61
Precalculus College Math	10*
Calculus for Math & Physics I	8*
Introduction to Sociology	68

* The Mathematics Department on the New Brunswick campus checks enrollment in their summer courses throughout the registration period, opening new sections as needed. This tighter control would explain why there are fewer seats remaining in math courses.

There were seats available in the top five desired courses, but our survey respondents reported that the courses they needed were not available. This disconnect suggests either a marketing or a scheduling problem. Either the Summer Session is not communicating effectively about course availability to students, or open sections of these popular courses were scheduled at times that were inconvenient for our student survey respondents. Further research is indicated to determine the factors behind this important student perception.

Easier courses. Rutgers students identified “I thought I could earn a higher grade than at my home institution” as the fourth-most-

important factor in their decision. This suggests that students believed courses taken at other institutions would be less rigorous, an interpretation that aligns with the finding that foundational courses taken at the home institution better prepare students for more advanced coursework at Rutgers (see below).

What are the effects of transient credit on students’ academic performance and graduation rate?

Transient Summer students graduated in fewer years than did Rutgers Summer students (4.40 years versus 5.11 years, on average, to graduation), but this difference seems due to a greater proportion of Transient Summer students being registered full time and earning more credits during the academic year than Rutgers Summer students. Transient Summer students actually applied

fewer transient credits toward their degrees than Rutgers Summer students earned at Rutgers, on average, in summers 2006–2012.

However, our data indicate that taking foundational courses at the home institution prepares students better for advanced courses taken at their own university than going elsewhere. Among students who took subsequent advanced courses at Rutgers, results in those advanced courses were a full letter grade higher for Rutgers Summer students than for Transient Summer students. This is a significant finding, particularly in light of the fact that Transient Summer students graduated Rutgers with a significantly higher GPA than Rutgers Summer students. In advanced courses in the same disciplines, weaker students who took foundational courses at their home institution outperformed stronger students who took foundational courses at other institutions.

Moreover, the average grade among Transient Summer students in these advanced courses taken at Rutgers was a “D” (1.7 on a four-point scale), which most academic departments may not accept toward degree requirements. For many students, earning a “D” in a course required for their major means retaking the course, adding cost and delaying progress toward a degree by up to a full year. This additional cost in time and money makes taking a “less expensive” prerequisite course at another institution a false economy.

These findings should be weighed against the possible benefits of experiencing higher education at other institutions. For example, survey research on the impact of study abroad indicates that college graduates who took at least one semester in another country reported that their international experience helped them build job skills and confidence. Further, they were more likely to find employment within the first year after graduation, and at a higher salary, than graduates who did not participate in study abroad (Preston, 2012).

What is the financial impact of transient credit on the home institution?

Transient credit cost Rutgers at least \$16.56 million in tuition revenues in summers 2006–2012. This is a conservative estimate of the true cost of allowing students to take courses elsewhere, because this figure does not include lost tuition for courses taken by Rutgers students at other institutions that resulted in “D,” “F,” or “W” grades (which are not transferable to Rutgers).

During this same period, the Rutgers Summer Sessions brought in \$27.98 million in visiting student summer tuition revenue. Taking transient credit losses and visiting student gains together, the institution came out ahead by \$11.42 million. However, in an era of greatly reduced state funding, poor performance of university endowments, and capped tuition increases, universities can ill afford to be sanguine about transient credit tuition losses of this magnitude.

Implications

How can institutions use these findings to improve their summer programs and enhance summer enrollment? We offer these suggestions.

Review your institution's transient credit policies and practices. Are they too lax? It may be in your students' and institution's best interests to restrict transient credit to elective courses applied toward their undergraduate degrees. Further, responsibility for reviewing course syllabi might be assigned to the academic department offering courses in the same discipline, to assure comparability of course level and content between the home and transient-credit institutions. Is the same material covered? Are the prerequisites comparable? Are assignments as rigorous? We do a disservice to students if we allow them to take less rigorous courses that prepare them poorly for advanced work at our own institutions. Finally, it may be important to consider the strategic value of the transient institution in achieving the student's academic and career goals. Does the transient school offer programs or experiences not available through the home institution?

Educate advisers and students. Advisers and students need to know about the benefits of taking summer courses at their home university, and the potential academic and financial costs of taking courses at other institutions. Students should understand the risks of taking coursework elsewhere, and advisers should be able to explain the reasons behind the institution's transient credit policy. This kind of intervention has been successful at Elon University, where students must apply for permission from the registrar's office to take courses elsewhere. Since registrar reviewers started providing personalized guidance to transient credit applicants about the benefits of taking their summer courses through their home institution, more Elon students have been taking their summer courses at "home" (Parks & Holmes, 2015).

Offer summer tuition discounts/scholarships. Rutgers students told us that cost was the primary reason that they went elsewhere to take summer courses. Consider reducing tuition rates or making scholarship funds available to your matriculated students in the summer term. At Rutgers, under Responsibility Center Management budgeting, we have been successful in partnering with academic schools to fund scholarships from summer tuition revenues, with the proviso that we apply these funds only to courses offered by the partner academic unit.

Offer summer courses online/at multiple locations. Students told us that one of the three most important reasons for going elsewhere in summer was the convenience of courses offered closer to their homes. We can increase convenience by offering more online and hybrid courses and by offering courses at satellite locations in our catchment areas. In recent years, Rutgers has greatly increased online and hybrid offerings, and established partnerships with New Jersey community colleges to provide upper-level undergraduate courses at various community college sites. These satellite sites not only accommodate our matriculated students living far from campus, but also attract community college graduates who want to transfer to Rutgers to complete a bachelor's degree. In 2015, we also initiated "Rutgers @ the Shore," a limited offering of summer courses at Jersey shore sites popular with our student population.

Revisit summer course scheduling. Were seats available in certain sections of these courses, on your own campus? Consider moving these sections to more popular offering dates and times.

Highlight the availability of courses most often transferred back to your institution in marketing materials. Consider segmenting your student population by demand for key courses, and preparing custom messages for each market segment about the availability of high-demand courses. Based upon our student survey, emails to Rutgers matriculated students were a powerful way to deliver our message. These can be sent regularly to update students on the availability of popular course sections.

Market your summer program to visiting students. As noted here, visiting student tuition revenues have exceeded the transient credit tuition losses sustained at Rutgers each summer. Reaching out to other institutions' matriculated undergraduate students via electronic and social media marketing can provide additional revenue to help offset transient credit losses. In addition, Rutgers and other universities have increased revenues by expanding programming and marketing to additional audiences, including pre-college and international students. Do you offer a certificate series, field experience, or research program that is not available elsewhere? You might also highlight special programs or faculty expertise that distinguishes your summer program from others.

Conduct further research on transient credit. More research is needed to confirm and extend the results reported here. Are these findings specific to Rutgers? Are the effects reported specific to the kinds of institutions that Transient Summer students chose to attend, or to the kinds of courses that they transferred back? This study is only a first step in understanding the impact of transient credit on students and institutions.

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Biography

Elizabeth Beasley, Director of Summer and Special Projects for Rutgers University – New Brunswick, oversees Summer Session, Winter Session, and special programs for pre-college and international students and K–12 educators. Beasley earned her BA in psychology at Douglass College (Rutgers University), and her MA and PhD candidacy in social psychology at Northwestern University.

Liana Aguiar has served as research specialist for Rutgers University – New Brunswick’s Office of Summer & Winter Sessions since 2014. She holds a master’s degree in survey research from the University of Connecticut and a bachelor’s degree in psychology from Monmouth University. This is Aguiar’s first publication.

Appendix

Transient Credit Summer Session Student Survey

Welcome. Please help us to understand our students' needs and how best to meet them by completing the following short survey. Please provide your name, email address, and telephone number at the end of the survey to be entered in a cash card draw.

Thank you for your help!

- Q1 While completing your undergraduate studies, have you ever taken a summer course for academic credit?
- Yes No
- Q2 Have you ever taken a summer course for academic credit at your home institution? (For the purpose of this survey, your "home institution" is the college or university where you are matriculated in a degree program.)
- Yes No
- Q3 How did you hear about your institution's Summer Session?
- Knew someone who had taken a summer course there
- Received a print brochure or postcard
- Received an email message
- Saw an advertisement online
- Used an Internet search engine
- Visited the institution's summer website
- Other, please specify: _____

For the purposes of this survey, if you have taken more than one summer course at your home institution, please answer the following questions about the course you took MOST RECENTLY.

- Q4 Why did you take this course? (Select all that apply.)
- To fulfill a requirement for my major
- To fulfill a general education requirement
- As an elective toward my degree
- As a prerequisite for an advanced course I plan to take
- To raise my GPA
- To learn about a topic of interest
- Other, please specify: _____

Q5 What course did you take in Summer Session as a prerequisite for an advanced course?

Q6 What grade did you earn in this summer course?

A B+ B C+ C D+ D F

Q7 What advanced course required this summer course as a prerequisite?

Q8 What grade did you earn in this advanced course?

A B+ B C+ C D+ D F

Q9 How would you rate how well your summer course prepared you for this advanced course?

Excellent Very Good Good Fair Poor

Q10 Overall, how would you rate your summer learning experience at your home institution?

Very Positive Positive Neutral Negative Very Negative

Q11 Can you please comment further on your summer experience?

Q12 While completing your undergraduate degree, have you ever taken a summer course for academic credit at another college or university as a visiting student?

Yes No

For the purposes of this survey, if you have taken more than one summer course at another college or university, please answer the following questions about the course you took MOST RECENTLY at another institution

Q13 How did you hear about this institution's Summer Session?

- Knew someone who had taken a summer course there
- Received a print brochure or postcard
- Received an email message
- Saw an advertisement online
- Used an Internet search engine
- Visited the institution's summer website
- Other, please specify: _____

Q14 Why did you take this course? (Select all that apply.)

- To fulfill a requirement for my major
- To fulfill a general education requirement
- As an elective toward my degree
- As a prerequisite for an advanced course I plan to take
- To raise my GPA
- To learn about a topic of interest
- Other, please specify: _____

Q15 What course did you take in Summer Session as a prerequisite for an advanced course?

Q16 What grade did you earn in this summer course?

- A B+ B C+ C D+ D F

Q17 What advanced course required this summer course as a prerequisite?

Q18 What grade did you earn in this advanced course?

- A B+ B C+ C D+ D F

Q19 How would you rate how well your summer course prepared you for this advanced course?

- Excellent Very Good Good Fair Poor

Q20 Please rate the importance of each of the below factors in your choice to take a course at another college or university.

Offered course not available at my home institution

Very Important Somewhat Important Neutral Somewhat Unimportant Very Unimportant

Located closer to my home than my home institution

Very Important Somewhat Important Neutral Somewhat Unimportant Very Unimportant

Tuition and fees were lower than at my home institution

Very Important Somewhat Important Neutral Somewhat Unimportant Very Unimportant

I thought I could earn a higher grade than at my home institution

Very Important Somewhat Important Neutral Somewhat Unimportant Very Unimportant

I am interested in attending this college or university in the future

Very Important Somewhat Important Neutral Somewhat Unimportant Very Unimportant

I have attended this college or university in the past

Very Important Somewhat Important Neutral Somewhat Unimportant Very Unimportant

Other, please specify: _____

Very Important Somewhat Important Neutral Somewhat Unimportant Very Unimportant

Q21 How did your experience at this college or university compare with your experience at your home institution? Please rate the following items:

	Better than my home institution	Same as my home institution	Worse than my home institution
Quality of course content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality of instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My mastery of material taught	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My final grade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My overall learning experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q22 Overall, how would you rate your learning experience at this other college or university?

- Very Positive Positive Neutral Negative Very Negative

Q23 Can you please comment further on your summer experience?

Now, just a few questions about you:

Q24 Where are you pursuing or where did you earn your undergraduate degree?

- Rutgers Camden
 Rutgers New Brunswick
 Rutgers Newark
 Another institution, please specify: _____

Q25 What is/was your major?

Q26 How did you enter the college/university where you earned/planned to earn your degree?

- As a first-year student
 As a transfer student

Q27 If you would like to enter the Visa cash card draw, please provide your name, email address, and phone number below. One \$500 and five \$100 cash cards will be given away. Would you like to be entered in the draw?

Yes No

Q28 What is your name?

Q29 What is your email?

Q30 What is your phone number?

Thank you for participating in this survey! Best wishes in your future academic pursuits.