Does Living Near Classmates Help Introductory Students Get Better Grades?

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Abstract

This paper examines whether freshmen in introductory courses get better grades if they have other students in their on-campus residential unit who are either taking the same course or who have taken the course in the past. It uses nine years of data for introductory courses in economics and other disciplines at Reed College. I find that having dorm-mates who are currently taking the class seems to have some benefit for students in some fields, but there is no evidence of benefit from having co-resident students who have previously completed the class.

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1. Introduction

The study of student peer effects has become a prominent issue in the economics of education. Most studies of peer effects look at whether having peers with higher measured academic aptitude (such as higher SAT scores or other admission credentials) leads to improved performance. For reasons of econometric identification, the most common category of college peers to be examined is roommates, although most studies of primary and secondary students (and a few in higher education) have looked for classmate peer effects.[1]

Classmate peers may influence classroom environment; roommate peers may affect study habits and environment. But does it matter whether those living in proximity are studying or have studied the same subjects? This paper examines whether freshmen's grades in introductory economics are affected by having classmates (or upper-level students who have taken the class) living in the same dormitory unit ("dorm-mates"). It looks at nine years of data for students in the introductory economics course at Reed College. To assess the robustness of the results within the Reed environment, it also examines parallel information for introductory courses Reed in biology, physics, and psychology.

2. Classmates and Dorm-Mates

Most students who have lived in a college dormitory are likely to agree that dorm-mates can have a large influence on the college experience. One encounters the people living in one's dorm unit every day: in the halls, in the bathrooms, or just passing by an open door. Dorm-mates are natural candidates for friendship and companionship. Noisy dorm-mates can interrupt sleep and distract a student trying to study in his or her room. Partying dorm-mates, besides being noisy, may tempt a student to join in the activity and reduce his or her study time.

Dorm life may also be a convenient venue in which to identify and utilize study partners or tutors, but only if there are dorm-mates who are taking the same class (for study partners) or who have taken the course previously (for tutors). One might expect that having more

[1] The seminal works in this literature are Sacerdote (2001) and Zimmerman (2003). More recent studies include Winston and Zimmerman (2004), Stinebrickner and Stinebrickner (2006), Foster (2006), Lyle (2007), Kremer and Levy (2008), and Stinebrickner and Stinebrickner (2008).

classmates living in the same dorm unit might afford a student a larger pool from which to draw potential study partners. If this larger pool allows the student to find someone with whom he or she can work productively, then it may improve his or her performance in the class. Similarly, having more students nearby who have completed the class may enlarge the pool of individuals from whom a student may seek information, making it more likely that he or she is able to overcome difficulties in the class.

We focus on freshmen, although the classes we study enroll higher-level students as well. (The term "higher-level students" is used here to mean all non-first-year students.) We emphasize first-year students for two reasons. First, most higher-level students have already formed peer groups with classmates, dorm-mates, and others from their previous year(s). Because they are more likely to have established peer groups, they are less dependent than first-year students on dorm-mates as sources of study partners or peer mentors. Second, our dataset does not allow us to track living arrangements of students living off campus. Hence, we would successfully count groups of higher-level students living on campus in the same dorm unit as dorm-mates, but would miss groups of students who share an off-campus house—a very common living arrangement among higher-level Reedies.

Many factors undoubtedly affect the quality of a dorm-mate peer. Some students are more talented communicators than others. Some are willing to spend more time with peers. Some have interests and personalities that encourage their peers to try hard and succeed; others may distract peers from academic endeavors. However, these highly relevant characteristics cannot be measured with available data. Thus, we must rely on measured academic quality as the sole indicator of peer quality.

The availability of dorm-mates as study partners and mentors can be measured crudely by the number of dorm-mates taking or having taken the same course, and we do so. However, the academic usefulness of a peer is probably also related to his or her academic ability and achievement. We expect that a higher-level student who received an A in introductory economics would be a more effective mentor than one who got a C. We expect that a fellow first-year student with strong academic credentials (SAT scores, high-school GPA, etc.) could (other things equal) be a better study partner than one whose credentials are weak.

3. Dorms and Courses

During the sample period, which runs from 1993–94 to 2001–02, the proportion of Reed College students living in on-campus residence halls increased from about 55% to about 65%. Throughout the period, nearly all first-year students (about 98%) lived on campus, with the exceptions being a handful of students who either lived at home or lived off campus due to special circumstances. Between one-third and one-half of higher-level students lived in college dorms.

Reed residence halls vary considerably in size and style. Some are language houses with 8 to 30 students. Some are small dormitories with 25–30 students; others are large dorms with multiple floors and/or sections. The larger dormitory buildings are divided into smaller sections of 20–30 students that are overseen by a common "house advisor," a higher-level student who lives in that dorm. Our definition of "dorm-mate" consists of students living in the same residential unit (which may be an entire small dorm or part of a large one) within the domain of a single house advisor. Such sets of dorm-mates form natural groupings since they typically meet together periodically, share social rooms, kitchens, and bathroom facilities, and may participate jointly in college-funded social activities organized by their house advisors.[2]

Reed has no all-freshman dorms, meaning that all first-year students in the dorms live in proximity to at least a few higher-level students.[3] The proportion of first-years in residential units varied from about 40 percent for the most attractive dorms (which attract many upper-class students) to over 80 percent for those that are in less demand by returning students. Thus, the exposure of first-year students to higher-level students varied considerably. Many students had ample opportunities to find dorm-mates who had previously completed the courses in which they were enrolled, but many did not.

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[2] In addition to dorms, Reed houses higher-level students in two apartment buildings adjacent to campus. Conversations with students who lived in both dorms and apartments suggest that residents in the apartment buildings do not interact in the same ways as those in dorms. The apartment buildings are larger (about 60 students) and lack the shared kitchen, bathroom, and social-room spaces of dorm units. We thus do not consider individuals who lived in the apartment buildings to be sharing a residential unit for purposes of this study. The results are not sensitive to this assumption as very few first-year students live in apartment housing.

[3] The converse is not true. Reed has five language houses and, as noted above, two apartment buildings to which first-year students are rarely assigned.

Our primary interest is in behavior in Economics 201, the one-semester introductory course in economics. Introductory economics differs from other major introductory courses at Reed College in several ways. During the sample period, economics was not a popular major at Reed, claiming less than 3 percent of the total student body. Econ 201 enrolled correspondingly fewer students than introductory courses in the sciences, foreign languages, and psychology.[4] Another difference is that the ratio of upper-class to freshman students in Econ 201 was larger than for these other introductory courses. Because we restrict our sample to freshmen, this further reduces our sample size.

Because of these unusual features of Econ 201, we examine three other introductory courses at Reed to assess the robustness of the statistical results. The courses we examine, in addition to Econ 201, are Biology 101, Physics 100, and Psychology 121. Each of these courses enrolls large numbers of first-year students and also some higher-level students, as shown in Table 1.

4. Construction of Variables and Estimation Method

We wish to measure the availability within the residential unit of two kinds of student peers: study partners and potential mentors. Our basic, quantitative measures are the number of dorm-mates currently taking the course and the number of dorm-mates who have previously taken the course.

We also want to look for effects of dorm-mates of either kind who are of high measured academic quality. For those who previously took the course, we can use the grade they earned in it. We have two quality-based measures for the availability of potential mentors; one is a dummy variable that is one if a student has a dorm-mate who completed the course with a grade of A– or better and the other sets the threshold at B+ or better.

To measure the academic aptitude for the dorm-mates who are currently taking an introductory course, we use a predicted course grade based on information from the students' Reed admission files. To predict course grade, we use math and verbal SAT scores, high-

[4] The other social sciences are not comparable. Introductory courses in anthropology and sociology are closed to freshmen. The introductory course in political science changed from a single course to a collection of alternative courses during the sample period. There is no introductory or freshman-level course in history.

school grade-point average, high-school class-rank percentile, and the "reader rating" assigned by Reed's admission deans. The reader rating is a summary measure of the deans' assessment of the student's academic suitability. It is based on all elements in the application file, including the quantitative variables that we use here (SAT and high-school record) as well as subjective factors such as assessments of application essays, admission interviews, the rigor of the student's high-school training, and other factors. It is measured on a one-to-five scale, with five being a perfect applicant. In practice, applicants with ratings of four or five are nearly always admitted; those below four are admitted selectively.

As is often the case in college databases, some students are missing data for some variables. For example, some high schools do not report class rank; some have non-standard grade-point averages that cannot be converted to a four-point scale; a few students are admitted without SAT scores.[5]

We want to measure the predicted grades of as many dorm-mate peers as possible, but restricting the sample to those with complete data would allow only about sixty percent of the cases to be predicted. This is problematic for the analysis of peer effects because we would have many students for whom we could not assess peer quality. To gain more complete prediction coverage, we base the grade prediction for each student on a regression all of course grade on those admission variables that are available for that particular student. Thus, the grade of a student with only SAT scores and reader rating is predicted by a regression (using the full available sample) with only these three variables; the predicted grade of a student with SAT scores, reader rating, and high-school GPA will be based on a regression with these four variables, and so on.[6]

Our final regressions examine the effect on course grade of subsets of seven dorm-mate peer variables. We measure the availability of study partners by the number of dorm-mates

[5] In most cases the no-SAT students submitted ACT scores. Only the ACT composite score is retained in the college database, which does not allow us to decompose these scores into math and verbal components.

[6] An alternative method, which we have explored in detail, is to use multiple stochastic imputation to impute the values of the missing cases. Multiple imputation proved problematic in this application because of observations with pervasive missing data and because imputed values for variables such as SAT and high-school GPA were frequently out of range.

currently taking the course. We measure the availability of mentors by the number of dorm-mates who have previously taken the course.

To proxy for the availability of high-ability study partners, we measure the number dorm-mates currently taking the course whose predicted grade is in the top 50 percent of all predicted grades, and the number in the top 25 percent. As noted above, we have two quality-based measures for dorm-mates who have taken the course before. We also measure the number of the dorm-mates who have previously taken the introductory course and gone on to major in the field.

In addition to these seven peer measures, we include verbal and math SAT scores and the admission office reader rating as controls for student ability. Dummies for instructor were individually and collectively insignificant and were omitted.

Our sample is all first-year students completing the course between 1993–94 and 2001–02 who lived in dormitory housing. Table 1 shows the number of students completing each of the courses during the sample period. Summary statistics for the regression variables for each of the samples are shown in Table 2.

5. Results

We discuss the results for each of the four courses individually, beginning with introductory economics and progressing to biology, physics, and psychology.

Economics 201

Table 3 shows the distribution of values for the number of dorm-mates taking Economics 201 and the number having taken the course. Of the 225 freshmen in our sample, 164 had at least one potential mentor in their residential unit who had taken Econ 201 and the median number is one. The median number of classmates currently taking the class was also one and 126 of 225 had at least one classmate in their dorm unit as a potential study partner. Only 28 students in the sample had neither.

The regressions for Economics 201 course grade are shown in Table 4. Each regression includes control variables, the total number of dorm-mates currently taking and having taken

Econ 201, and one of the measures of dorm-mate academic quality. The regressions explain only about one-fifth of the variance in grades.

The control variables have predictable signs, magnitude, and significance. Reader rating has a strong positive effect on the Econ 201 grade. SAT scores also affect the grade in the expected way: verbal SAT is estimated to have a small and statistically insignificant positive effect; math SAT has a stronger and statistically significant effect.[7]

The estimated effects of the number and quality of potential dorm-mate mentors having taken economics are consistently negative, tiny, and statistically insignificant. There is no evidence that first-year students gain from mentoring by their co-residents, even when those dorm-mates are economics majors or excelled in introductory economics themselves.

There is a positive and significant effect of having Econ 201 classmates in the same residential unit, but the effect of high-predicted-grade dorm-mates is surprising. For example, using column (1) of Table 4, having an additional classmate living in the same dorm unit increases a student's expected grade by one quarter of a grade (almost one plus-minus grade). But having an additional student in the top half of the predicted grade distribution *lowers* the expected grade by more than 0.20 grade points, negating almost all of the positive effect. This suggests that only the presence of weaker-than-average students in the dorm unit actually raises a student's grade. Indeed, we cannot reject the hypothesis of a zero sum for the coefficient on total number of classmate dorm-mates and the coefficient on the number of high-quality classmate dorm-mates.

Other introductory courses

As noted above, Econ 201 is a relatively small introductory course at Reed College and is more often taken by upper-class students than by freshmen. To assess the broader

[7] We must be careful to note that these coefficients are not true partial effects. A student with a higher SAT score (of either type) will, other things being equal, have a higher reader rating as well, because higher scores will raise the admission deans' assessment of the student. Thus, a zero coefficient on an SAT score in these regressions would mean that the weight attached to the score in the reader rating exactly matches the weight of that score in predicting the Econ 201 grade. A positive coefficient means that the score is even more important for Econ 201 success than in forming the admission office's assessment. A negative coefficient on one of the SAT scores is plausible; it would mean that the admission deans put more weight on that SAT component than its importance in predicting the Econ 201 grade.

applicability of our results at Reed, we examine three other introductory courses: Biology 101, Physics 100, and Psychology 121.

Biology 101

Biology 101 is the largest introductory disciplinary course at Reed College and—other than Humanities 110, which is taken by all first-year students—the most popular freshman choice. It is the fall semester half of a two-semester introduction to biology. Of the 1,096 students taking Bio 101 during our nine-year sample, 822 were freshmen living on campus and having sufficient data to allow their inclusion in the sample.

The course is composed of three independent parts, taught sequentially by three different instructors each semester. It consists of a single, unified lecture section, and multiple smaller conference and lab sections. Another difference from Econ 201 is that introductory biology students have a lab partner. This provides one additional source of potential study partners outside the dorm, which could make dorm-mates less important as a source.

As shown in Table 5, over 97 percent of the biology students in our sample had dorm-mates taking Biology 101 and over 83 percent had a dorm-mate who had previously taken the course.[8] The median number of dorm-mates taking the course is four and the median number having taken it is two. Thus, for biology the variation in the number taking and number having taken dorm-mate variables are mostly between "a few" and "more" rather than "a few" and "none."

The regression results for the biology sample are shown in Table 6. The estimated coefficients on reader rating and both SAT scores are positive and highly statistically significant. The math coefficient is consistently larger than that on the verbal score. This suggests that both test scores are even more important for predicting the biology grade than in the admission office's overall assessment.

The results of the dorm-mate peer variables are consistent with those reported above for Econ 201, though smaller in magnitude and less statistically significant. As with the economics course, the number and quality of dorm-mates having taken Bio 101 is estimated to have a negligible impact on student performance.

[8] From Table 3, the corresponding numbers for Econ 201 are 55 percent with a dorm-mate taking Econ 201 and 72 percent with one having taken it.

The number of classmates in the residence unit has a positive and at least marginally significant effect on the biology grade, but only in the specifications (the first two columns of Table 6) in which the number above the fiftieth or seventy-fifth percentile is also included. The number of high-predicted-grade dorm-mates enters negatively and, when defined by the median, has strong statistical significance. In the biology sample, the negative coefficient on the number of high-quality dorm-mate classmates exceeds in absolute value the positive coefficient on the total number, and the difference is statistically significant (p value = 0.02) for the fiftieth percentile.

Once again, as with the Econ 201 sample, having low-predicted-grade classmates living nearby seems strongly beneficial. In this case, having high-predicted-grade classmates in the dorm unit actually seems to lower a student's grade slightly.

Physics 100

Physics 100 differs from the other introductory courses studied here in that it is neither a one-semester introduction to the discipline like Econ 201 nor the first-semester of a two-semester introduction like Bio 101. Instead, Physics 100 is a full-year introductory course in which a single grade is assigned for a full year's worth of work. In practice, the fall and spring semesters are taught by different professors and the grade for the year is an average of two semester grades. Students may, with permission, drop the course at mid-year and receive credit only for the first half.[9] The course includes a large, unified lecture with smaller conference and lab sessions.

Like Econ 201, less than half of the students in Physics 100 are first-year students.[10] Its overall enrollment is somewhat larger than introductory economics. Table 7 shows the distribution of dorm-mates in Physics 100. A large majority of students had both a classmate and someone who had previously taken physics in their residence unit. The median number of classmates was two and the median number of potential mentors was one.

The regression results for Physics 100 are presented in Table 8. Reader rating affects the physics grade somewhat more strongly than the grades in economics or biology; it appears that students who are assessed to be strong overall are especially likely to excel in physics.

[9] These students are included in our sample.
[10] A calculus prerequisite may contribute to the prevalence of postponing Physics 100.

The coefficient on math SAT is, as one would expect in a highly quantitative course, strongly positive. The verbal SAT score has a negative estimated coefficient in the physics equation. This does not imply that students with strong verbal abilities do worse in physics, merely that strong verbal scores do not raise performance in physics by as much as they raise the admission office's overall assessment of the student.

The effects of dorm-mate peers in physics differ somewhat from those in the economics and biology samples. From columns (1) and (2) of Table 8, the number of high-quality classmates in the dorm unit has a small, negative, and marginally significant coefficient. The coefficient of the total number of dorm-mates taking physics is smaller in absolute value (as in the biology sample) and statistically insignificant. Thus, the pattern of classmate effects is similar to, but smaller than, those in economics and biology.

One interesting difference is the positive and significant coefficient on the presence of a potential mentor dorm-mate who received an A– or better in introductory physics. The estimated coefficient is large (about one-half of a +/– grade). The estimated coefficients on the number of physics majors and the presence of a B+ or better student are positive and seem to be of appropriate magnitude (relative to the A– coefficient), but are not statistically significant. This suggests a possible role for in-dorm mentoring that was not evident in the economics or biology samples.

Psychology 121

Psychology 121 is structurally similar to Biology 101. It is the first half of a two-semester introductory sequence; it is team-taught sequentially by three instructors; and it consists of a large unified lecture with small conferences and labs.

As shown by Table 1, enrollment in Psych 121 is slightly larger than Physics 100, but with a larger proportion of freshmen. Table 9 shows the pattern of dorm-mate peers in Psych 121. Over 90 percent of freshmen in the course have a dorm-mate in the course and almost two-thirds have a dorm-mate who has taken the course.

Table 10 presents the regression results for Psych 121. As with the other courses, reader rating has a strong positive effect on course grade. Both SAT components have a positive marginal effect over and above their effect on reader rating.

The estimated coefficients of the dorm-mate peer variables for Psych 121 do not conform to the pattern of the other three courses. Both the number of currently taking and the number of previously taken dorm-mates have negative effects; the latter, although very small, are statistically significant. All of the quality variables for both dorm-mates taking and having taken Psych 121 are positive, but very small. Only the effect of classmates with predicted grades above the median has marginal statistical significance.

6. Interpretation

Taken as a whole, our results provide little support for the hypothesis that Reed College freshmen gain from having students in their residential unit who have expertise in the subject they are studying. This outcome may reflect the accessibility of other kinds of academic support on the Reed campus. Student tutors are available for all of these classes and faculty members are generally very accessible through office hours or appointments. Residential relationships may simply be unnecessary as sources of potential mentors.

The evidence is stronger that having classmates in a student's dorm affects the student's performance. The evidence from Economics 201supports the hypothesis that having classmates living in proximity tends to improve freshmen's grades. This result is supported strongly by the estimates for Biology 101 and weakly by Physics 100, but not by the evidence from Psychology 121.

A puzzling aspect of our results is that it appears that having classmate/dorm-mates with low admission credentials is beneficial, while having classmates with high measured academic potential (except in the psychology sample) does not help students get higher grades. There are at least two reasons why having lower-ability students might be beneficial. First, a stronger student become a peer-mentor to the weaker one, enhancing his or her own learning in the process—apparently, if our results are to be believed, more than the learning of the student being mentored. If this peer-mentoring hypothesis is the correct explanation for our results, then the effects we see in the aggregate data should be especially strong for a sub-sample of stronger students, since they are most likely to be drafted by dorm-mates as peer mentors.

Second, a student without a high-ability study partner may be forced to do more of the actual work on homework assignments because he or she cannot find anyone who has already successfully completed them. Struggling with difficult assignments without a high-ability study partner may lead to more effective learning, which could be reflected in higher exam scores and better grades. Such struggling may also entail additional visits to the instructor or course tutors, which might be more learning-enhancing than working with a very smart classmate on an assignment. If this working-independently hypothesis is true, then our aggregate results should apply strongly to a sub-sample of weaker students, who might free-ride on the efforts of stronger dorm-mates if they are available.

To test these alternative explanations, we ran separate regressions for sub-samples of Economics 201 students who were above and below the median predicted course grade. The results support both hypotheses: the qualitative econometric results were very similar for the two sub-samples, although statistical significance was lower in both cases due to the reduced sample size.

7. Conclusions

The econometric work reported here suggests that freshmen at Reed College draw some benefit from living in proximity to classmates. They do not seem to gain from having dorm-mates who have taken their classes in previous years.

A complementary approach to studying this question would be to survey students about their study habits. A survey could ask students directly how much they study with classmates and where they met their study partners. It could ask whether they sought help from more advanced students and whether dorm contact played a role in finding these mentors. However, a survey alone could not answer the more central question of this paper, which is whether studying with dorm-mates or mentoring by dorm-mates leads to improved academic performance. Only by linking the results of the survey with actual grade outcomes could one effectively assess whether students who study with dorm-mates earn higher grades.

One must be careful in extending the results reported here to other settings. Reed has a number of distinctive characteristics that may impede generalization of these results to other

institutions.[11] Perhaps most important, it is a small, largely residential academic community in which it is relatively easy for students for form networks of friends, mentors, and study partners. Students may be less reliant on dorm-mates in such an environment than they would be in a larger university where students are more dispersed.

Reed is selective in admissions, so the range of academic abilities among the students may be smaller than at less selective institutions. This could affect the kind of study-partner relationships that are most productive, making joint work by peers of similar ability more common and peer-mentoring of very weak students less common.

Reed is unusual even among selective liberal-arts colleges in its devotion to academics and its approach to grading. There are no athletic teams or Greek social organizations and interest in extra-curricular activities is very limited. The Reed Library is the social center of campus. Grades are de-emphasized in favor of learning for its own sake; faculty do not put numerical or letter grades on exams or papers and students are not automatically informed of their grades (as long as they are satisfactory) during or after the course, though they can get grades at mid-term and the end of the semester by inquiring through their academic advisor.

In this environment, academics are at the center stage and we would expect peer and mentoring relationships to be very important. The emphasis on learning vs. grades should encourage students to focus their work on problem sets and lab assignments more on learning and less on simply getting the assignment done correctly and handed in, though there remains plenty of pressure for the latter.[12]

In short, Reed College and selective liberal-arts colleges in general are a small but important part of American higher education. The kinds of classmate/dorm-mate interactions we study could be either more important or less important than at larger and less selective institutions. The academic enterprise is taken very seriously at these schools, which may encourage a greater degree of collaboration. However, the institutions are small, which should give students more opportunities to collaborate with classmates outside the residential setting. High accessibility of faculty may reduce the extent to which students utilize peer-

[11] I had planned to extend this study to two other Northwest liberal-arts colleges for which some data are available. However, gaps in the available residential datasets proved insurmountable.

[12] In another paper I have found strong evidence that collaboration by Reed economics students takes the form of mutual contributions to homework assignments rather than free-riding by one student on the work of another. See Parker (forthcoming).

mentoring and, as noted above, the limited range of academic abilities may limit the need for it.

This paper suggests that the opportunity to interact with classmates in a residential environment may improve academic performance of freshmen in some introductory courses. Whether this result extends to other liberal-arts colleges and to universities awaits further analysis.

Tables

Table 1. Characteristics of introductory courses

Course	Economics 201	Biology 101	Physics 100	Psychology 121
Structure	One-semester course taught both fall and spring	First semester of two-semester sequence. Taught fall only.	Full-year course. Fall semester may be taken without spring by permission.	First semester of two-semester sequence. Taught fall only.
Format	Two sections of 10–25	Common lecture with multiple conferences and labs	Common lecture with multiple conferences and labs	Common lecture with multiple conferences and labs
Students receiving grade in course: 1993–94 through 2001–02:				
Total	634	1,096	739	787
Dorm-resident	378	954	539	590
First-year, dorm-resident	237	855	332	439
First-year, dorm-resident, with SAT data	225	822	323	424

Table 2. Summary statistics

	Econ sample		Biology sample		Physics sample		Psych sample	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Course grade	2.83	0.91	2.68	0.86	2.90	0.86	2.87	0.77
Math SAT (/100)	6.65	0.66	6.45	0.69	6.95	0.63	6.38	0.71
Verbal SAT (/100)	6.83	0.71	6.81	0.71	6.81	0.72	6.78	0.71
Reader rating	3.39	0.61	3.44	0.53	3.44	0.53	3.31	0.51
Dorm-mates taking: Total	0.88	1.00	4.79	2.84	2.61	1.81	2.41	1.48
Dorm-mates taking: >50th percentile	0.49	0.73	2.49	1.88	1.40	1.28	1.31	1.30
Dorm-mates taking: >75th percentile	0.25	0.55	1.26	1.27	0.71	0.92	0.67	0.86
Dorm-mates having taken: Total	1.34	1.40	2.20	1.90	1.81	1.62	1.42	1.33
Dorm-mates having taken: Majors	0.28	0.52	0.93	1.07	0.60	0.90	0.63	0.86
Dorm-mate having taken: B+ or better?	0.38	0.49	0.45	0.50	0.60	0.49	0.40	0.49
Dorm-mate having taken: A– or better?	0.28	0.45	0.32	0.46	0.41	0.49	0.25	0.43

Table 3. Dorm-mates taking and having taken Economics 201

Number of dorm-mates taking Economics 201	Number of dorm-mates having taken Economics 201							
		0	1	2	3	4	5+	Total
	0	28	42	14	11	3	3	101
	1	21	30	11	9	1	2	74
	2	8	9	9	0	1	3	30
	3	4	9	2	0	0	2	17
	4	0	3	0	0	0	0	3
	Total	61	93	36	20	5	10	225

Table 4. Economics 201 regression results

		(1)	(2)	(3)	(4)	(5)
Own control variables	Reader rating (1 – 5 scale)	0.455***	0.445***	0.436***	0.428***	0.436***
		(0.0820)	(0.0815)	(0.0819)	(0.0827)	(0.0821)
	Verbal SAT (in 100s)	0.107	0.103	0.0988	0.0989	0.0989
		(0.110)	(0.110)	(0.109)	(0.109)	(0.109)
	Math SAT (in 100s)	0.187**	0.211**	0.216**	0.215**	0.216**
		(0.0842)	(0.0833)	(0.0846)	(0.0843)	(0.0839)
Dorm-mates currently taking Econ 201	Total	0.250***	0.186***	0.129**	0.127**	0.129**
		(0.0813)	(0.0647)	(0.0512)	(0.0508)	(0.0505)
	Predicted grade above 50th pctl.	–0.211**				
		(0.106)				
	Predicted grade above 75th pctl.		–0.185*			
			(0.111)			
Dorm-mates having previously taken Econ 201	Total	–0.0492	–0.0449	–0.0559	–0.0375	–0.0399
		(0.0387)	(0.0378)	(0.0417)	(0.0424)	(0.0416)
	Economics majors			0.00496		
				(0.100)		
	Earned B+ or better?				–0.0921	
					(0.124)	
	Earned A– or better?					–0.0884
						(0.131)
	Constant	–0.737	–0.847	–0.797	–0.756	–0.792
		(0.798)	(0.783)	(0.792)	(0.774)	(0.785)
	Observations	225	225	225	225	225
	R–squared	0.208	0.205	0.198	0.199	0.199

Dependent variable is grade earned in Economics 201 (0.0 – 4.0).

Robust standard errors in parentheses.

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 5. Dorm-mates taking and having taken Biology 101

Number of dorm-mates taking Biology 101	Number of dorm-mates having taken Biology 101								
		0	1	2	3	4	5	6+	Total
	0	5	4	2	6	3	3	0	23
	1	4	10	12	8	0	8	5	47
	2	13	26	20	11	18	17	6	111
	3	32	24	34	25	19	4	11	149
	4	19	21	29	8	11	5	22	115
	5	9	32	11	23	10	0	11	96
	6	12	7	14	0	12	0	5	50
	7	24	13	14	8	12	0	0	75
	8+	17	103	25	6	7	0	0	158
	Total	135	242	161	95	92	37	60	822

Table 6. Biology 101 regression results

		(1)	(2)	(3)	(4)	(5)
Own control variables	Reader rating (1 – 5 scale)	0.429***	0.417***	0.411***	0.411***	0.411***
		(0.0551)	(0.0553)	(0.0549)	(0.0550)	(0.0550)
	Verbal SAT (in 100s)	0.161***	0.162***	0.166***	0.167***	0.166***
		(0.0420)	(0.0427)	(0.0431)	(0.0430)	(0.0430)
	Math SAT (in 100s)	0.285***	0.279***	0.281***	0.279***	0.281***
		(0.0416)	(0.0423)	(0.0422)	(0.0423)	(0.0423)
Dorm-mates currently taking Biology 101	Total	0.0643***	0.0248*	0.0134	0.0142	0.0136
		(0.0151)	(0.0126)	(0.00934)	(0.00937)	(0.00936)
	Predicted grade above 50th pctl.	–0.0969***				
		(0.0225)				
	Predicted grade above 75th pctl.		–0.0382			
			(0.0278)			
Dorm-mates having previously taken Biology 101	Total	–0.00554	–0.00894	–0.0163	–0.0151	–0.0108
		(0.0139)	(0.0140)	(0.0221)	(0.0160)	(0.0154)
	Biology majors			0.0126		
				(0.0375)		
	Earned B+ or better?				0.0331	
					(0.0638)	
	Earned A– or better?					0.00147
						(0.0638)
	Constant	–1.788***	–1.713***	–1.721***	–1.728***	–1.721***
		(0.324)	(0.329)	(0.330)	(0.330)	(0.330)
	Observations	822	822	822	822	822
	R–squared	0.216	0.200	0.199	0.199	0.199

Dependent variable is grade earned in Biology 101 (0.0 – 4.0).

Robust standard errors in parentheses.

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 7. Dorm-mates taking and having taken Physics 100

Number of dorm-mates taking Physics 100	Number of dorm-mates having taken Physics 100							
		0	1	2	3	4	5+	Total
	0	9	13	8	5	2	0	37
	1	14	19	9	10	3	5	60
	2	13	14	19	13	5	7	71
	3	8	30	9	11	3	0	61
	4	10	9	22	7	1	0	49
	5+	13	11	8	0	3	10	45
	Total	67	96	75	46	17	22	323

Table 8. Physics 100 regression results

		(1)	(2)	(3)	(4)	(5)
Own control variables	Reader rating (1 – 5 scale)	0.580***	0.594***	0.591***	0.581***	0.579***
		(0.0869)	(0.0886)	(0.0867)	(0.0864)	(0.0863)
	Verbal SAT (in 100s)	–0.166**	–0.169**	–0.181**	–0.169**	–0.175**
		(0.0715)	(0.0711)	(0.0717)	(0.0710)	(0.0709)
	Math SAT (in 100s)	0.241***	0.242***	0.240***	0.243***	0.246***
		(0.0791)	(0.0797)	(0.0801)	(0.0799)	(0.0789)
Dorm-mates currently taking Physics 100	Total	0.0437	0.0129	–0.0182	–0.0226	–0.0161
		(0.0354)	(0.0288)	(0.0257)	(0.0261)	(0.0257)
	Predicted grade above 50th pctl.	–0.115**				
		(0.0503)				
	Predicted grade above 75th pctl.		–0.112*			
			(0.0644)			
Dorm-mates having previously taken Physics 100	Total	–0.00827	–0.0131	–0.0423	–0.0223	–0.0343
		(0.0275)	(0.0274)	(0.0367)	(0.0315)	(0.0303)
	Physics majors			0.0856		
				(0.0629)		
	Earned B+ or better?				0.103	
					(0.104)	
	Earned A– or better?					0.183**
						(0.0920)
	Constant	0.420	0.397	0.509	0.406	0.422
		(0.487)	(0.487)	(0.494)	(0.492)	(0.493)
	Observations	323	323	323	323	323
	R–squared	0.187	0.185	0.179	0.178	0.184

Dependent variable is grade earned in Physics 100 (0.0 – 4.0).

Robust standard errors in parentheses.

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 9. Dorm-mates taking and having taken Psychology 121

Number of dorm-mates taking Psychology 121	Number of dorm-mates having taken Psychology 121						
	0	1	2	3	4	5+	Total
0	11	18	7	2	0	0	38
1	25	25	13	7	2	6	79
2	37	39	23	16	11	0	126
3	16	41	7	8	14	4	90
4	10	15	10	18	0	0	53
5+	17	13	8	0	0	0	38
Total	117	151	68	51	27	10	424

Table 10. Psychology 121 regression results

		(1)	(2)	(3)	(4)	(5)
Own control variables	Reader rating	0.379***	0.391***	0.394***	0.400***	0.399***
	(1 – 5 scale)	(0.0653)	(0.0647)	(0.0642)	(0.0645)	(0.0643)
	Verbal SAT	0.192***	0.196***	0.194***	0.196***	0.197***
	(in 100s)	(0.0497)	(0.0499)	(0.0496)	(0.0499)	(0.0500)
	Math SAT	0.185***	0.183***	0.185***	0.182***	0.183***
	(in 100s)	(0.0504)	(0.0504)	(0.0499)	(0.0504)	(0.0504)
Dorm-mates currently taking Psych 121	Total	–0.0692*	–0.0338	–0.0128	–0.0136	–0.0137
		(0.0392)	(0.0291)	(0.0212)	(0.0213)	(0.0212)
	Predicted grade	0.0853*				
	above 50th pctl.	(0.0453)				
	Predicted grade		0.0603			
	above 75th pctl.		(0.0485)			
Dorm–mates having previously taken Psych 121	Total	–0.0465*	–0.0519**	–0.0799**	–0.0587*	–0.0545*
		(0.0243)	(0.0244)	(0.0318)	(0.0309)	(0.0291)
	Psychology majors			0.0595		
				(0.0482)		
	Earned B+ or better?				0.0199	
					(0.0894)	
	Earned A– or better?					0.00200
						(0.0956)
	Constant	–0.744**	–0.804**	–0.820**	–0.838**	–0.837**
		(0.358)	(0.357)	(0.355)	(0.358)	(0.358)
	Observations	424	424	424	424	424
	R–squared	0.224	0.219	0.218	0.216	0.216

Dependent variable is grade earned in Psychology 121 (0.0 – 4.0).

Robust standard errors in parentheses.

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

References

Foster, Gigi. 2006. It's Not Your Peers, and It's Not Your Friends: Some Progress toward Understanding the Educational Peer Effect Mechanism. *Journal of Public Economics* 90 (8-9):1455-75.

Kremer, Michael, and Dan Levy. 2008. Peer Effects and Alcohol Use among College Students. *Journal of Economic Perspectives* 22 (3):189-206.

Lyle, David S. 2007. Estimating and Interpreting Peer and Role Model Effects from Randomly Assigned Social Groups at West Point. *Review of Economics and Statistics* 89 (2):289-299.

Parker, Jeffrey. Forthcoming. *Journal of Economic Education.* Available online at academic.reed.edu/economics/parker/.

Sacerdote, Bruce. 2001. Peer Effects with Random Assignment: Results for Dartmouth Roommates. *Quarterly Journal of Economics* 116 (2):681-704.

Stinebrickner, Ralph, and Todd R. Stinebrickner. 2006. What Can Be Learned about Peer Effects Using College Roommates? Evidence from New Survey Data and Students from Disadvantaged Backgrounds. *Journal of Public Economics* 90 (8-9):1435-54.

———. 2008. The Causal Effect of Studying on Academic Performance. *B.E. Journal of Economic Analysis & Policy* 8 (1: Frontiers):Article 14.

Winston, Gordon C., and David J. Zimmerman. 2004. Peer Effects in Higher Education. In *College Choices: The Economics of Where to Go, When to Go, and How to Pay for It*, edited by C. Hoxby. Chicago: National Bureau of Economic Research and University of Chicago Press.

Zimmerman, David J. 2003. Peer Effects in Academic Outcomes: Evidence from a Natural Experiment. *Review of Economics and Statistics* 85 (1):9-23.