Influence of Integrated Academic and Co-Curricular Activities On First-Year Student Success

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S. Patrick Walton received his B.ChE. from Georgia Tech, where he began his biomedical research career in the Cardiovascular Fluid Dynamics Laboratory. He then attended MIT where he earned his M.S. and Sc.D. while working jointly with researchers at the Shriners Burns Hospital and Massachusetts General Hospital. While at MIT, he was awarded a Shell Foundation Fellowship and was an NIH biotechnology Predoctoral Trainee. Upon completion of his doctoral studies, he joined the Stanford University Genome Technology Center, receiving an NIH Kirschstein post-doctoral fellowship. He joined Michigan State University in 2004 and his research is focused on the development of parallel analytical methods and the engineering of active nucleic acids (e.g., siRNAs) through mechanism-based design. He has been recognized for his accomplishments in both teaching and research, receiving the MSU Teacher-Scholar award, the College of Engineering Withrow Teaching Excellence Award, and being named an MSU Lilly Teaching Fellow.

Dr. Mark Urban-Lurain, Michigan State University

Mark Urban-Lurain is an Associate Professor and Associate Director of the Center for Engineering Education Research at Michigan State University. Dr. Urban-Lurain is responsible for teaching, research and curriculum development, with emphasis on engineering education and, more broadly, STEM education. His research interests are in theories of cognition, how these theories inform the design of instruction, how we might best design instructional technology within those frameworks, and how the research and development of instructional technologies can inform our theories of cognition. He is also interested in preparing future STEM faculty for teaching, incorporating instructional technology as part of instructional design, and STEM education improvement and reform.

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Introduction

Increasing the number of STEM graduates from U.S. universities is a national priority. This need can be addressed through a variety of means focused on increased recruitment of students to STEM majors and to retention of those students within STEM disciplines. The Michigan State University (MSU) College of Engineering has responded to this need through a large-scale initiative, the CoRe (Cornerstone and Residential) Experience. The CoRe Experience integrates first-year engineering academics and co-curricular activities to support the academic, personal, and professional growth of early engineering students. Our short-term goal is to assist our students in gaining admission to the College of Engineering. Once they are admitted, our archival data show that roughly 87% of students persist to graduation.

It should be noted that the MSU College of Engineering uses a secondary admission policy. Admission to the College means that a student: i) has chosen to remain in an engineering major and ii) has satisfied the academic requirements to enter that major. Our CoRe Experience activities seek to support success students along both of these dimensions. To the first point, we believe that students are more likely to remain in an engineering major if they believe it is an enjoyable and/or worthwhile undertaking. We have both academic and co-curricular activities that seek to demonstrate the value, relevance, and importance of engineering to these students. To the second point, students must maintain a sufficient grade point average across a variety of introductory technical courses, including the CoRe academic program, to gain admission to the College. A variety of academic and co-curricular supports are in place, including “close-to-home” tutoring, mentoring, and advising, that assist students in satisfying the requirements.

To ascertain the effectiveness of the support system provided by the CoRe Experience, we administer annual surveys to students in the College. The first was administered in May, 2012, and the most recent in May, 2013. The purpose of these surveys is to obtain feedback and reflection on the first-year experiences of engineering students who took any of the three introductory engineering courses at Michigan State University, EGR 100, and EGR 102 or CSE 231, between Fall semester, 2009, and Spring semester, 2013. The longer term goal is to develop a longitudinal view of student success in the CoRe Experience program and to identify factors that both attract students to the program and enhance their persistence in our college.

CoRe Experience Structure

The first-year engineering course, EGR 100, Introduction to Engineering Design, a team-based design project course, was piloted in Spring, 2008, offered full-scale in Fall, 2008, and has been offered each semester since. This course is required of all incoming engineering students. EGR 102, Introduction to Engineering Modeling, an engineering problem-solving and computation course, follows in sequence and is required of all engineering majors other than computer science and computer engineering. Students in those two majors instead take CSE 231, Introduction to Programming I, a Python®-based programming course, as their introductory
Beginning in 1993, the MSU College of Engineering was actively involved with the *Residential Option for Science and Engineering Students (ROSES)* initiative. This was a small-scale residential living-learning program intended to provide a supportive and collegial environment for new first-year students intending to pursue majors and careers in technical fields. Starting in Fall semester 2009, the *Engineering Residential Experience (ERE)*, transitioned that small-scale science and engineering residential program with approximately 150 students to a large-scale living-learning community program with a potential to accommodate our 1200 incoming undergraduate engineering students. The academic and residential programs were merged and renamed the CoRe (*Cornerstone and Residential*) Experience in January, 2012. Our academic (Cornerstone) and co-curricular (Residential) programs and services are co-located, with facilities for each housed in two adjacent University residence halls. Included in our co-curricular efforts to assist students in their academic, professional, and personal development, we offer on-site advising, engineering course-specific tutoring, and special topical programs.

**Survey Details**

Students in our survey population can be characterized on two dimensions. *Persisters* are those students that, at the time of the survey, were enrolled as engineering students vs. *Leavers*, who are students that had begun as engineering students but were in non-engineering majors at the time of the survey. *Residents* refers to those students who chose to live in the first-year engineering residence hall vs. *Non-residents* who lived either in other residence halls on campus or in off-campus housing. This terminology of “resident” versus “non-resident” will be used throughout this paper and should not be confused with state of residence or country of origin.

We used two sources of data to inform our analysis. Demographic and student status data were obtained from our Office of the Registrar. The CoRe Experience survey was designed to target specific questions about student attitudes and motivation, and feedback on academic and co-curricular programming. An abbreviated version of the survey can be found in Appendix I. Questions have been minimally revised to avoid references to specific MSU programs and locations so as to be of greater value to the reader. The goal of analysis and evaluation was to provide information on student perception of the CoRe Experience, its positive impacts, and opportunities for improvement. We asked 33 questions of persisters and 31 questions of leavers about their perceptions of the first-year engineering curriculum and residential program. The survey was conducted by the College of Engineering through the office of the Assistant Dean of Student Advancement and Program Assessment. The survey results were analyzed by that office and by the Center for Engineering Education Research (CEER).

The entire student population of all persisters and leavers was represented as follows (Class numerals represent 1 = 1st-year, 2 = 2nd-year, etc.):
Table 1a. Characteristics of Student Population at the Time of Survey (May, 2013)

<table>
<thead>
<tr>
<th>Sub-Population</th>
<th>Number</th>
<th>Male</th>
<th>Female</th>
<th>Class* (% do not add to 100 due to missing data)</th>
<th>{Name} Hall residents</th>
<th>Mean GPA</th>
<th>Mean ACT_Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persisters</td>
<td>3658</td>
<td>82.8%</td>
<td>17.2%</td>
<td>1: 8.6% 2: 23.9% 3: 23.5% 4: 43.0%</td>
<td>1227 (33.5%)</td>
<td>3.03</td>
<td>26.56 (comp) 28.05 (math)</td>
</tr>
<tr>
<td>Leavers</td>
<td>545</td>
<td>80.2%</td>
<td>19.8%</td>
<td>1: 15.6% 2: 25.1% 3: 22.1% 4: 33.4%</td>
<td>N/A</td>
<td>2.87</td>
<td>25.55 (comp) 26.63 (math)</td>
</tr>
</tbody>
</table>

Table 1b. Characteristics of Respondent Population at the Time of Survey (May, 2013)

<table>
<thead>
<tr>
<th>Respondent Sub-Population</th>
<th>Number</th>
<th>Male</th>
<th>Female</th>
<th>Class* (% do not add to 100 due to missing data)</th>
<th>{Name} Hall residents</th>
<th>Mean GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persisters</td>
<td>957</td>
<td>709</td>
<td>248</td>
<td>1: 20.1% 2: 19.6% 3: 22.3% 4: 38.0%</td>
<td>272</td>
<td>2.90</td>
</tr>
<tr>
<td>Leavers</td>
<td>51</td>
<td>29</td>
<td>22</td>
<td>1: 0% 2: 0% 3: 33% 4: 67%</td>
<td>9</td>
<td>3.07</td>
</tr>
</tbody>
</table>

The response rate for leavers was 9.35% (64.6% men and 35.4% women) and 22.7% (72.4% men and 27.6% women) for persisters.

This paper discusses the data collected thus far as well as results of the initial analysis of student perceptions of the MSU CoRe Experience. We were particularly interested to determine specifics about our persisters and leavers so as to possibly anticipate trends and co-curricular programming for future years. We also wished to determine if our efforts helped students prepare for the rest of their academic careers. Our initial analysis focuses on four program activities—the introductory courses, advising, tutoring, and special programs—and the attitudes of persisters vs. leavers, and residents vs. non-residents.
**Persister and Leaver Demographics**

We first used MSU Registrar data to examine the demographics of the 3658 persisters and 545 leavers to determine any factors that would predict the likelihood of incoming students migrating to one group or the other. These factors included incoming ACT scores, gender, citizenship, grade point average, their Honors College status, and whether or not they chose to live in the designated CoRe Experience residence hall.

Demographics of the persister group were 17.2% (630/3658) female and 82.8% (3028/3658) male. The leaver group was 19.8% (108/545) female and 80.2% (437/545) male. There is not a statistically significant difference in persistence by gender (Chi-square = 2.205, df = 1, p = .138). Leavers had slightly lower incoming ACT scores. Incoming average ACT composite test scores for persisters were 26.56 and 25.55 for leavers (p < .001). Incoming average ACT Math scores for persisters were 28.05 and for leavers were 26.63 (p < .001). Our institutional admissions office reports that ACT scores are more reliable predictors of success in our institution than high school GPA, and were therefore used in this study.

Of the persisters, 15.3% (559) were Honors College students while only 7.3% (40) of leavers were in the program (Chi-square = 24.483, df = 1, p < .001). This was not surprising as we would expect high-achieving students that were invited to participate in the Honors College to persist in our program. Our Honors College admits high school students in the top five percent of their classes or those with composite ACT scores of at least 30.

Michigan State University has been recruiting more international undergraduate students. There were a total of 656 international students, 15.9% of the total population. We found 92.5% (607) of international students persisted, vs. 86.0% of domestic students (Chi-square = 20.666, df = 1, p < .001). Again, our international student population is highly recruited, and we would expect a higher percentage of those students to persist.

We examined persistence of first-generation college attendees. We found 21.1% (773) of persisters to be first generation students and 24.2% of leavers to be in this category (Chi-square = 2.678, df = 1, p = .102). Therefore, we found no significant differences in persister or leaver status for first generation students.

**Resident and Non-Resident Results**

In order to determine the influence of student residence in the designated first-year residence hall on student success, we examined data for “residents” vs. “non-residents.” To ensure that we could isolate the impacts of our residential program, we began with comparisons of the characteristics of residents and non-residents as they entered the University.

Students that chose to live in our designated residence hall (residents) had an incoming average ACT composite score of 26.6 compared with students who chose to live elsewhere (non-residents) incoming score of 26.3 (p = .031). Residents had an average ACT math score of 28.1 while non-residents had a score of 27.7 (p = .006). While each of these is statistically significant, the differences in absolute scores are less than 2%. Additionally, 34.7% of women were residents while 31.5% of male were residents (Chi-square = 2.812, df = 1, p = .094). We
also found no difference in our residential population when considering first generation status, with first generation students electing to be residents at the same rate, 31.7% (287/905), as non-first generation students, 32.2% (Chi-square = .068, df = 1, p = .794). By these measures, the resident and non-resident populations are generally similar.

The biggest distinction between the resident and non-resident groups was in their citizenship status. Domestic students were more than twice as likely (35.1%) as international students (16.2%) to participate in the resident experience (Chi-square = 90.924, df = 1, p < .001). We are continuing to investigate how this difference may have influenced our other analyses.

With that basis for comparison of residents and non-residents, one of the strongest indicators of the value of our program is the effect on student persistence. Of persisters, 33.5% (1227) were residents. Conversely, only 22.2% (121) of the leavers were residents (Chi-square = 28.004, df = 1, p < .001). Our most recent data also suggest that residents are less likely to be placed on academic probation after their first semester than non-residents - 8.5% of residents vs. 16.4% for non-residents (Chi-square = 7.130, df = 1, p = .008). This points to success in our efforts to aid students in their transition to university life, academically and otherwise.

**Academic and Co-Curricular Activity Results**

Another goal was to use the survey data to determine the impacts of co-location of our academic and co-curricular activities and programs on student success. Given our preliminary analysis of the survey results, our data suggest we are achieving our aims. Students were asked to rate our program overall with greater than 85% of respondents rating the program “Good” or higher (Figure 1).

![Histogram](image.png)

**Figure 1:** Survey response when asked, “Overall, I would rate the MSU College of Engineering CoRe Experience as ________ .“ 1 = Excellent, 2 = Very Good, 3 = Good, 4 = Fair, 5 = Poor.
Additionally, survey respondents were asked to rate their attitude about the experience of living in the designated residence hall and whether it contributed to their feeling “part of the College of Engineering.” Overall, the results were very positive (Figure 2), and responses from female students (Figure 2a) were more positive than male students (Figure 2b) \( p = .004 \), Mann-Whitney U non-parametric test.

![Histogram for CoRe_Flag - F](image)

*Figure 2a (Females) and Figure 2b (Males): Survey response when asked, “Please rate your level of agreement with the statement - Living in the CoRe Experience helped me feel more a part of the College of Engineering than if I would have lived in another residence hall.” 1 = Strongly agree, 2 = Agree, 3 = Disagree, 4 = Strongly Disagree.*

I. Introductory Courses

For our introductory courses, the learning objectives are focused on student competency in the design methodology, problem solving, computational skills, communication, teamwork, and professionalism. When asked if our courses were meeting these objectives, persisters generally agreed, with mean responses below a value of 2.5 on the rating scale \( (1 = \text{strongly agree}; 2 = \text{agree}; 3 = \text{disagree}; 4 = \text{strongly disagree}) \) for all categories related to learning objectives for all students surveyed, regardless of the semester they took the courses. In regards to whether the courses were preparing students for subsequent coursework, student attitudes were more mixed, with mean responses between 2 and 3 on the rating scale. In general, the more recently the student had taken the courses, the more favorable were the ratings.

Persisters also provided valuable comments about improving our courses. The themes of these comments included connection between lecture and laboratory activities, project ideas, and team dynamics. Some highlights of responses included the following:
Strengths:
- Working in teams (75% of responses)
- Lab sections (56%)
- Projects (53%)
- Team design exercises (52%)

Need improvement:
- Lecture format (69% of responses)
- Homework assignments (49%)
- Projects (33%)

II. Advising

The College of Engineering employs professional academic advisors, with several of them focused specifically on first-year advising. The advisors both assist students with the planning of their class schedules and provide guidance regarding academic and non-academic resources that are available to students. The first-year advisors are located in the residence hall with our academic and co-curricular programs. Our students used academic advising services with 43% attending two to three times per semester. Residents used advising services more (65% attending two to three times per semester) than non-residents (36% two to three times per semester). Surprisingly, over one-third of student responders (34%) indicated they never attended an academic advising session. This is a point that our advising group will consider for future improvement.

Yet, with regards to student success, we asked the students to describe the influence of advising on their attitude toward engineering as a career (1 = very positive; 2 = positive; 3 = very negative; 4 = negative). Twenty two percent of survey respondents rated the influence of advising as very positive, and 74% as positive. Only about four percent gave either of the negative ratings.

III. Tutoring

The CoRe Experience tutoring program is designed to support students in each of the technical courses required for secondary admission to the College of Engineering. These include the introductory calculus, chemistry, physics, engineering, and computing courses. The tutoring center is co-located with the academic and co-curricular program facilities and operates Sunday through Thursday evenings. Tutors are upper-level students who have received a grade of A-/B+ or better in each of the courses they support.

Both resident and non-resident persisters viewed the tutoring program offered through the CoRe Experience program favorably with over 90% of respondents indicating it as a positive or very positive experience. However, we found that residents used tutoring more often than non-residents. Nearly 54% of residents indicated they attended tutoring at least once per week while only 18% of non-residents attended as regularly. This is especially critical given prior work showing that a student’s confidence in their math and science abilities is a strong predictor of their persistence in engineering.7-9


**IV. Special Programs**

Evening programs are used as a means to provide context and relevance for students outside of their courses. These are intended to help students see themselves graduating and succeeding as professional engineers, a factor that has been found to greatly differentiate persisters and leavers. These programs primarily consist of talks by faculty or industry representatives or other professionals and are held in our program residence halls. An example of these is our industry showcases where company representatives meet with students informally to describe how the company fits into an industry sector and how the student’s major would prepare them for a career in that sector. We also offer several social activities for our students. These programs are typically offered during the workday in one of our program residence halls.

Our survey results suggest that hosting these programs in the residence hall housing many of our students improves participation. Roughly 36% of residents participated in evening programs two to three times per semester as compared to only 21% of non-residents. Similarly, only 35% of residents indicated they never attended an evening program, relative to 47% of non-residents. For our social programs, many of which were new and did not exist at the time when our older students were in our first-year program, similar gains in participation were indicated (28% for residents vs. 3% for non-residents).

Evening programs proved to be a good investment in our student attitudes toward engineering as a career. Ninety-seven percent of respondents indicated that they rated the influence of these programs on their attitudes toward engineering careers as either very positive (22%) or positive (75%).

One of our special programs, Connector Faculty, is specifically aimed at retaining those students who choose to leave engineering for another discipline even though academic achievement is not an issue. These potential “leavers” have been studied extensively with a major conclusion being that this type of student goes elsewhere largely because he/she feels isolated, disconnected, and adrift. The Connector Faculty program matches first-year students with faculty in their respective disciplines to provide engagement, guidance, and advice to our new students through informal social interactions. Faculty engagement with the student can make the difference between the student's remaining in engineering and choosing a different, seemingly “friendlier” career path. This is an opt-in program, so only about 30-40% of first-year students participate in this program.

As expected, since this is not a residence hall-centric activity, we found no difference in participation levels or attitude (83% positive or very positive) between resident and non-resident students.

**Conclusions**

When comparing persisters and leavers, we found no significant differences in percentage of composition by gender, first generation student status or cumulative average grade point averages. We also did not find appreciable differences in the incoming ACT composite or math exam scores.
We also did not find significant differences in the composition of persister and leaver measures except for our having a greater percentage of persisters chose to be residents of our designated first-year engineering residence hall. We also saw a higher percentage of international students persist as compared to the general population.

In nearly every survey category regarding use of our support programs and activities, leavers comprised a large majority of the “never participated” responses. Therefore, their attitudinal data was not statistically significant in our analysis. However, the fact that they did not participate may be an indicator of the reasons why they eventually left engineering. Further analysis of the data may assist us in designing future activities to support retention of these students.

We found student attitudes toward our program to be generally positive with regards to both academic and co-curricular activities. These attitudes did not differ between residents and non-residents. We also found, as expected, that the frequency of usage of services and activities by residents was considerably higher than that of non-residents. The data suggest that having our academic and co-curricular programs and services co-located is helpful to students. We plan to administer the survey annually to compare results from the various cohorts as they progress through the program. Ultimately, the aggregated, longitudinal results should aid us in our student retention efforts by highlighting reasons why students persist or leave.

Acknowledgments

We wish to particularly recognize the contributions and engagement of our industry sponsors/partners, Consumers Energy, GE and Bosch, in the MSU College of Engineering CoRe Experience for all of their efforts in bringing this initiative from idea to reality.

Bibliography


Appendix I

Assessment of First-Year Programs 2013
(abbreviated survey questions provided for the reader with introduction/consent form removed)

The CoRe Experience program (EGR 100, EGR 102, plus the former Engineering Residential Experience); CSE 231

Overall, I would rate the MSU College of Engineering CoRe Experience program as
☑ Excellent (1)
☑ Very Good (2)
☑ Good (3)
☑ Fair (4)
☑ Poor (5)

Are you currently a student in the College of Engineering? (declared major, no preference, not yet admitted, admitted)
☑ Yes (1)
☑ No (2)

If you are no longer a student in the College of Engineering, please indicate your major.

What motivated you to choose a different major? Select all that apply to you.
☐ Lost interest (1)
☐ Was more passionate about a different discipline (2)
☐ Calculus class(es) (3)
☐ Poor instructors (4)
☐ Grades did not allow me to be admitted into the College of Engineering (5)
☐ Classes too difficult (6)
☐ Workload too heavy (7)
☐ Didn't enjoy my classes (8)
☐ Didn't like my fellow students (9)
☐ Didn't like EGR 100 and/or EGR 102 (10)
☐ Other (please describe below) (11) ____________________
CURRICULUM
Did you take or are you taking EGR 100? [The same set of questions was asked for the other
courses in the first-year curriculum.]
○ Yes (1)
○ No (2)
If No Is Selected, Skip Logic

EGR 100, Introduction to Engineering Design, helped prepare me for my coursework in the
College of Engineering.
○ Strongly Agree (1)
○ Agree (2)
○ Disagree (3)
○ Strongly Disagree (4)

Based on your experience in taking EGR 100 and looking back on its influence in your College
of Engineering studies, what do you see as the strengths of this course? Please check all that
apply.
☐ Lecture (1)
☐ Lab (2)
☐ Instructor (3)
☐ Teaching assistant (4)
☐ Team Design Exercises (5)
☐ Projects (6)
☐ Working in teams/groups (7)
☐ Homework assignments (8)
☐ Other (specify below) (9) ___________________

Based on your experience in taking EGR 100 and looking back on its influence in your College
of Engineering studies, what do you see as areas needing improvement in this course? Please
check all that apply.
☐ Lectures (1)
☐ Lab (2)
☐ Instructor (3)
☐ Teaching assistant (4)
☐ Team Design Exercises (5)
☐ Projects (6)
☐ Working in teams/groups (7)
☐ Homework assignments (8)
☐ Other (specify below) (9) ___________________
Did you take or are you taking EGR 102, Introduction to Engineering Modeling?

- Yes (1)
- No (2)

If No Is Selected, Then Skip Logic

CO-CURRICULAR EXPERIENCES

Do you or did you live in Wilson Hall as part of the CoRe Residential Experience (formerly the Engineering Residential Experience)?

- Yes (1)
- No (2)

If No Is Selected, Then Skip Logic

Why did you originally choose to live in Wilson Hall as part of the residential experience? Select all that apply.

- I wanted to live with other engineering students (1)
- It was part of what attracted me to come to MSU (2)
- I had a friend or roommate who chose to live in Wilson Hall (3)
- I wanted to be in the South Neighborhood (4)
- I was influenced by others to make this choice (5)
- I had heard about this program through the engineering website, friends, and/or other publicity (6)
- Other (please describe) (7) _____________________
Please rate your level of agreement with the following statements regarding your experience of living in Wilson Hall. The Engineering Residential Experience (living in Wilson Hall) . . .

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree (1)</th>
<th>Agree (2)</th>
<th>Disagree (3)</th>
<th>Strongly Disagree (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helped me feel more a part of the College of Engineering than if I would have lived in another residence hall (1)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Made me more committed to engineering as my major because of my experiences in Wilson Hall (2)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Was a good location on campus (3)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Was the best living situation for me (4)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

I returned to live in Wilson Hall after my first year or plan on doing so next year.
○ Yes (1)
○ No (2)

If No Is Selected, Then Skip Logic

What motivated you to live in Wilson Hall or another South Neighborhood residence hall after the first year? Please check all that apply for you.
☐ The location was convenient (1)
☐ I liked the idea of a residential program--living with students studying and doing the same things I was (2)
☐ I had friends in the residential program (3)
☐ I liked Wilson Hall/South Neighborhood residence hall (4)
☐ I was a Peer Leader/RA in Wilson (5)
☐ Other (6) ____________________
What would you change about your first-year living experience in Wilson Hall? Please check all that apply.

- Update rooms &/or the building (1)
- Actually have an engineering roommate or more engineers on my floor (2)
- Have a non-engineering roommate or fewer engineers on my floor (3)
- Add more social events (4)
- Better cafeteria/more hours (5)
- More hours for computer labs (6)
- Other (7) ____________________

Whether you lived in Wilson Hall or not as a first- or second-year student, approximately how often did you use the activities or services provided to you in Wilson Hall/South Neighborhood?

<table>
<thead>
<tr>
<th></th>
<th>At least once a week (1)</th>
<th>About twice a month (2)</th>
<th>About once a month (3)</th>
<th>Two to three times a semester (4)</th>
<th>Never (5)</th>
<th>Didn't know this existed (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutoring (1)</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
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<tr>
<td>Academic Advising (2)</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
</tr>
<tr>
<td>Evening programs</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
</tr>
<tr>
<td>(talks from industry,</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
<td>◯</td>
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</tr>
<tr>
<td>faculty, or other</td>
<td></td>
<td></td>
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<tr>
<td>professionals) (3)</td>
<td></td>
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<tr>
<td>List of other activities . . .</td>
<td>◯</td>
<td>◯</td>
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</tbody>
</table>
Please indicate how your attitude toward engineering studies and engineering as a future career was affected by participating in these services and activities. If you did not participate in the service or activity, choose N/A.

<table>
<thead>
<tr>
<th>Service Description</th>
<th>Very positively (1)</th>
<th>Positively (2)</th>
<th>Negatively (3)</th>
<th>Very negatively (4)</th>
<th>N/A (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutoring (1)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Academic Advising (2)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Evening programs (talks from industry, faculty, or other professionals) (3)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Power Hour (4)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Wacky Tuesday (5)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Connector Faculty (informal interactions with faculty--opt in program) (6)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
If you didn't participate in some or any of these activities, please indicate why. Please select an answer for each category of events that most closely matches your main reason for not participating.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Too busy (1)</th>
<th>Wanted to, but other activities conflicted (2)</th>
<th>Did not help/were useless (3)</th>
<th>Bad experience/stopped going (4)</th>
<th>Didn't live in Wilson Hall (5)</th>
<th>Didn't know this existed (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutoring (1)</td>
<td></td>
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<tr>
<td>Academic Advising (2)</td>
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<tr>
<td>Evening programs (3)</td>
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<tr>
<td>Connector Faculty (6)</td>
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</tbody>
</table>
Please answer only for the courses that you took.

<table>
<thead>
<tr>
<th></th>
<th>Very strong connection (1)</th>
<th>Strong connection (2)</th>
<th>Little connection (3)</th>
<th>No connection (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The connection between my EGR 100 course and the co-curricular (outside class) activities (e.g., Engineering Connect, outside work related to what was done in class, connected to a homework assignment or project, etc.) was:</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The connection between EGR 102 and the co-curricular activities was:</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The connection between my CSE 231 course and the co-curricular activities was:</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

MY SCHEDULE

Please answer the following about a typical week in your semester. In a typical week,

_____ about how many hours do you spend in class? (1)

_____ about how many hours do you spend out of class studying? (2)
Regarding employment on or off campus, on average, how many hours do you work per week? (Note: not being employed is a choice in the dropdown menu of zero hours per week).

- 0 (zero; I am not employed) (1)
- 1-5 hours (2)
- 6-10 (3)
- 11-15 (4)
- 16-20 (5)
- 21-25 (6)
- 26-30 (7)
- 31-35 (8)
- 36-40 (9)
- More than 40 (10)

The most important thing I would tell a freshman about succeeding in the first year of engineering is (please complete the sentence in the textbox below) . . .