



Undergraduate Exit Survey

Spring 2018 Findings

Institutional Research and Analytics
Office of the Provost

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EXECUTIVE SUMMARY

This report summarizes the results of the 2018 Undergraduate Exit Survey. The survey was designed by Institutional Research and Analytics (Office of the Provost) and administered to 528 potential graduating students (undergraduate level) at Nazarbayev University (NU) from mid-April to mid-June 2018.

Purpose of the Survey

The purpose of the Undergraduate Exit Survey is to promote a data-driven understanding of the educational experiences of NU undergraduate students and of their post-graduation plans. Data collected through this survey will help shed light on the level/quality of academic support that NU provided to its fourth cohort of undergraduate students (class of 2018) and support institutional self-assessment.

Survey Response Rate

Overall, 414 graduating students participated in the survey in Spring 2018, for a response rate of 78.4%. Response rates were higher for female compared to male students and higher for Science and Technology compared to other schools. Analytical steps were taken to ensure that survey results did not suffer from non-response bias.

Summary of Key Findings

Composite indicators of student experiences and perceptions

We constructed 13 composite indicators of student perceptions and experiences based on student ratings on specific items and on the correlation among items that measured a specific dimension. To facilitate interpretation, composite indicators were computed on a scale from 0 to 100. Key findings include the following:

Graduating students had a highly positive perception of NU (average score = 71 out of 100). They were also highly positive about the skills and competencies acquired at NU (average score = 71) and about how much emphasis NU put on graduate attributes during their undergraduate studies (average score = 70).

Graduating students also rated themselves high on key psychological measures, including (1) self-esteem, or perception of one's own worth relative to an "ideal self" (average score = 70) and (2) self-concept, or perception of one's competence relative to others (average score = 68). They rated themselves high on individual development (how well NU met their career, personal, and intellectual needs (average score = 68), and were highly satisfied with campus resources and services (average score = 70).

Graduating students were fairly satisfied with their program/major (average score = 64), and with their curricular preparation for life after graduation—i.e., career opportunities and postgraduate studies—(average score = 60). Students, however, engaged in key academic behaviors (that empirical research has found to contribute to student success) with low to moderate frequency (average score = 45).

Students tended to be less dependent on others (family, friends, classmates, faculty, staff) for emotional, social, and academic support (average score = 45)—an indication that they tended to be more autonomous. They encountered a relatively low level of difficulties (average score = 39) and found their experiences to be moderately stressful (average score = 54).

In general, student ratings of their experiences and perceptions along these indicators are consistent with those from previous graduating cohorts.

Other experiences

- *Enriching activities completed:* 81% of the students reported that they participated in an internship, 75% in a volunteer activity, and 21% in a study abroad program. Also, 59% reported that they completed a culminating senior experience (capstone project, thesis) and 51% that they worked on a research project with a faculty member.
- *Writing:* Students reported that they produced, on average, seven shorter (up to five pages) and five longer (more than five pages) papers during the academic year.
- *Class absenteeism and its reasons:* 90% of the students reported that they missed at least one class during Spring 2018. Illness (76%), using class time to complete assignments from other classes (63%), and inconvenient class schedule (62%) were the top three reasons for missing class.

Student employment: 51% of the students reported that they worked for pay, at least at some point, during the academic year. About three quarters of working students worked both Fall and Spring semesters. Six in 10 working students worked up to 10 hours per week.

Post-graduation plans

- Half of the graduating students expected to pursue graduate or professional studies in Fall 2018, whereas 42% expected to enter the workforce (and 8% to engage in other activities).
- Among the 157 students who expected to enter the workforce, 42% reported that they had received a job offer at the time of survey completion (mid-April to mid-June 2018).
- Key highlights for the 191 students who planned to attend graduate or professional school include:
 - 37% had received an admission offer by the time they completed this survey.
 - 80% planned to pursue a master's and 13% a doctorate degree.
 - Science and Technology was the most popular field of postgraduate study (20%) followed by Humanities and Social Sciences (16%).
 - Nazarbayev University was the most frequently cited prospective institution overall (35%).

Suggestions for NU, interactions with faculty, and advice to new students

In open-ended comments, increasing course availability and variety; improving academic programs (design, flexibility, and relevance); and improving facilities emerged as the top suggestions for improvement. Advising/mentoring/supervision; faculty support (personal, psychological, and intellectual); and working with faculty on projects emerged as the areas in which students had some of the most positive/meaningful interactions with faculty members. In their advice to new NU students, graduating students particularly stressed the importance of good planning and self-management skills; studying and working diligently; and social integration.

Summary, Conclusion, and Perspectives

Overall, graduating students had a positive perception of different aspects of their undergraduate experiences. Skill/competency development, overall perception of NU, psychological maturity (self-esteem and self-concept), institutional emphasis on graduate attributes, satisfaction with campus resources/services, and individual development (intellectual/personal growth) were rated particularly high. These results are consistent with the experiences and perceptions of previous graduating cohorts.

Analyses also revealed that, student perceptions/experiences were a lot more positive on some aspects but also a lot less positive on others. Below are some examples:

- *Perception of NU:* Whereas students were very strongly inclined to recommend NU to other potential students, they were a lot less positive about how effectively student feedback is used to improve learning at NU.
- *Program satisfaction:* Although students tended to be more satisfied with their instructors' availability out of class, they tended to be a lot less satisfied with the availability and variety of courses in their program.
- *Curricular preparation:* Students tended to be more positive about how well their undergraduate curriculum prepared them for graduate/professional studies; however, they were a lot less positive about how well the curriculum prepared them for career opportunities.
- *Individual development:* Students were highly positive about how well NU met their needs for personal and intellectual growth; however, they were a lot less positive about how well NU met their overall career preparation needs.
- *Skills and abilities:* Time management and writing received significantly less positive ratings compared to other skills/abilities.

Student success in higher education is not simply a function of the support students receive from the institution. It is also a function of students' own engagement and effort. We found that graduating students continue to score relatively low on frequency of key academic behaviors that empirical research has generally found to contribute to student success. For instance, students reported low levels of interaction with faculty members: only 22% of the students indicated that they "often" or "very often" discussed their academic performance with faculty members; 27% indicated that they "often" or "very often" discussed course topics and ideas with faculty members outside class. Students, however, rated faculty availability out of class very positively. This contrast suggests that many students may not have taken full advantage of the academic support and wisdom that faculty members offer. Empirical research has showed, consistently, that student-faculty interaction is a key determinant of a positive and successful academic experience.

Other academic behaviors that appeared to be problematic are class attendance and study habits. With respect to attendance, 90% of the survey respondents indicated that they missed at least one class (and 60% of the students missed at least four classes) in Spring 2018. Absenteeism, as empirical research has shown, is negatively related to academic success. With respect to study habits, students devoted about 17 hours per week (seven days), on average, to class preparation (studying, reading, and completing assignments). This was only three hours and a half (per week) more than the time they spent socializing with friends and 4 hours and a half (per week) more than the time they spent on social networks. Only four in ten students reported spending more than 20 hours of class preparation time per week (at least three hours per day) in Spring 2018. A recent empirical study conducted by Institutional Research and Analytics (see Chiteng Kot, 2018) found a large gap between the amount of time invested by undergraduate students and the amount expected by academic credit systems (ECTS and Carnegie). By ECTS standards (European Union, 2015), the amount of time needed for achieving learning outcomes varies from student to student. The observed discrepancy, however, still raises a question on how sufficient the amount of time invested by an average student is for achieving learning outcomes that are appropriate at a given level (course/program).

Finally, in open-ended comments, increasing course availability and variety and improving academic programs (in terms of design, flexibility, and relevance) emerged as the top two recommendations graduating students made to NU. These recommendations are consistent with students' rating of their experiences/perceptions relative to their academic program. For instance, less than half of the students were very positive that they would choose the same program if they had to start over again (compared to 63% who were very positive that they would still choose to come to NU).

In sum, findings from the 2018 Undergraduate Exit Survey are consistent (to a very large degree) with those from previous surveys. As NU embraces continuous improvement, we recommend (as we did in 2018) that faculty members, programs, schools, and the University community reflect on (1) the extent to which the University is integrating student voices/input; (2) how well course offerings (availability and variety) meet the demand; (3) how well curricular and extracurricular activities prepare students for future careers. We also suggest that student orientations, class periods, and academic advising sessions be used as opportunities to discuss student *academic engagement* and help students maximize the level/quality of engagement (e.g. interaction with faculty, class attendance, study habits, and time management).

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INTRODUCTION

About the Undergraduate Exit Survey

The Undergraduate Exit Survey aims to promote a data-driven understanding of the educational experiences of NU's graduating students (undergraduate level) and of their post-graduation plans. The survey measures different aspects of graduating students' undergraduate experiences and post-graduation plans. Table 1 summarizes the topics and number of questions in the 2018 Undergraduate Exit Survey.

Table 1. Survey Topics and Items

Survey Topic	Number of Survey Items
Perception of NU (institutional level)	8
Program satisfaction	12
Preparation for life after graduation	2
Development of skills and competencies	17
Graduate attribute emphasis	8
Time usage	8
Frequency of academic behaviors	9
Class absenteeism and its reasons	9
Difficulties encountered	12
Writing and other activities completed	8
Psychological dispositions	18
Sleeping behavior	2
Post-graduation plan	7
Satisfaction with NU services and facilities	12
Student employment during the year	5
Individual development	3
Open-ended comments	3

This survey was developed by Institutional Research and Analytics (Office of the Provost), with input from undergraduate schools and from relevant support units. Some questions on the survey were adapted from popular U.S. instruments¹. The survey was administered electronically, through Qualtrics, from mid-April to mid-June 2018.

Target Population, Response Rates, and Survey Completion

The Undergraduate Exit Survey targets undergraduate students who are eligible to complete their Bachelor's degree program at the end of the academic year. In Spring 2018, the Office of the Registrar provided Institutional Research and Analytics with a list of 528 potential graduates. These students were invited to participate in the survey. Overall, 414 students participated, for a response rate of 78.4%. Appendix N provides response rates by school, gender, and level of academic achievement. Of the students who completed the survey, 98% actually graduated in Spring or Summer 2018. Analyses, however, were conducted using all 414 responses received.

¹ These instruments include the National Survey of Student Engagement (NSSE), the Cooperative Institutional Research Program Survey (CIRP), and the College Student Experience Survey (CSEQ).

Survey completion rate was also high: 91% of the participants responded to at least 80% of the relevant items on the survey (with 70% of the participants responding to every applicable close-ended item). By survey research standards, a survey participant responding to more than 80% of applicable questions yields a “complete” rather than a “partial” survey response (The American Association for Public Opinion Research, 2008).

Population and Survey Respondent Distributions

Figure 1. Population and survey respondent distribution by school

Survey respondents' distribution by school did not differ substantially from the school distribution in the **overall population of graduating students**.



Figure 2. Population and survey respondent distribution by gender

Survey respondents' distribution by gender did not differ substantially from the gender distribution in the **overall population of graduating students**.

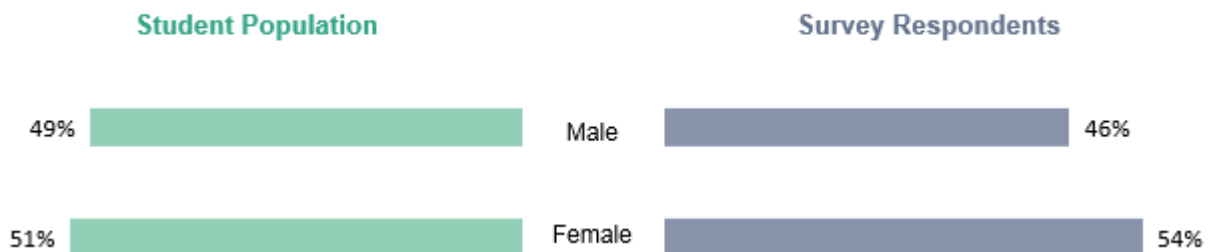


Figure 3. Population and Survey Respondent Distribution by Prior Academic Performance

Survey respondents' distribution by level of academic achievement did not differ substantially from the distribution in the **overall population of graduating students**.



Data Analysis

We used various analytical approaches. (1) We used Principal Component Analysis and reliability analysis to create thirteen indicators that summarized student perceptions and experience. This analysis was based on more than 100 items with a rating scale. For each indicator, we created a composite score on a scale from 0 to 100. This step involved reverse-coding negatively worded items before the analysis. (2) We then computed descriptive statistics (mean, standard deviation, median, and number of respondents) for each indicator. (3) We computed relevant descriptive statistics (mean, standard deviation, frequency distribution of responses, and number of respondents, where applicable) for each close-ended item. The aim of this descriptive analysis was to provide a snapshot description of the perceptions, undergraduate experiences, and post-graduation plans of graduating students.

The survey included three open-ended questions. We coded students' comments and identified emerging themes.

Non-Response Error

Differences in response rates across sub-groups can lead to non-response bias, particularly if these sub-groups also differ in their responses to particular survey questions (Kalton, 1983; Pike, 2008). For information on how we addressed non-response error, see Appendix O.

Limitations

Information collected through surveys is almost always prone to error, particularly due to the difficulty human beings have "encoding and accurately reporting information" (Porter, 2011, p. 69). Different sources of survey error have been documented in the literature, including sampling error, coverage error, non-response error, and measurement error. These errors can present limitations on the accuracy/precision of survey results. For more information, see Appendix P.

Organization of the Report

This report is organized into three main parts. Part I provides relevant descriptive statistics on composite indicators (measures) of student perceptions and experiences. Part II reports on other experiences. Part III provides a summary of narrative comments. Part IV includes appendices: detailed analyses by survey item (A-M), response rates by key student characteristics (N), information on non-response bias (O), limitations related to the precision of survey results (P), and computation of composite indicators (Q).

I. COMPOSITE INDICATORS OF STUDENT PERCEPTIONS AND EXPERIENCES

I.1. Composite Indicator Description

We derived 13 composite indicators that summarize different aspects of students' perceptions and experiences, based on student responses to 100 survey items, using a combination of Principal Component Analysis and reliability analysis. Reliability coefficients for each scale are shown in Table 27 (Appendix Q). Each indicator consists in a composite score on a scale from 0 (low) to 100 (high). The indicators are as follows:

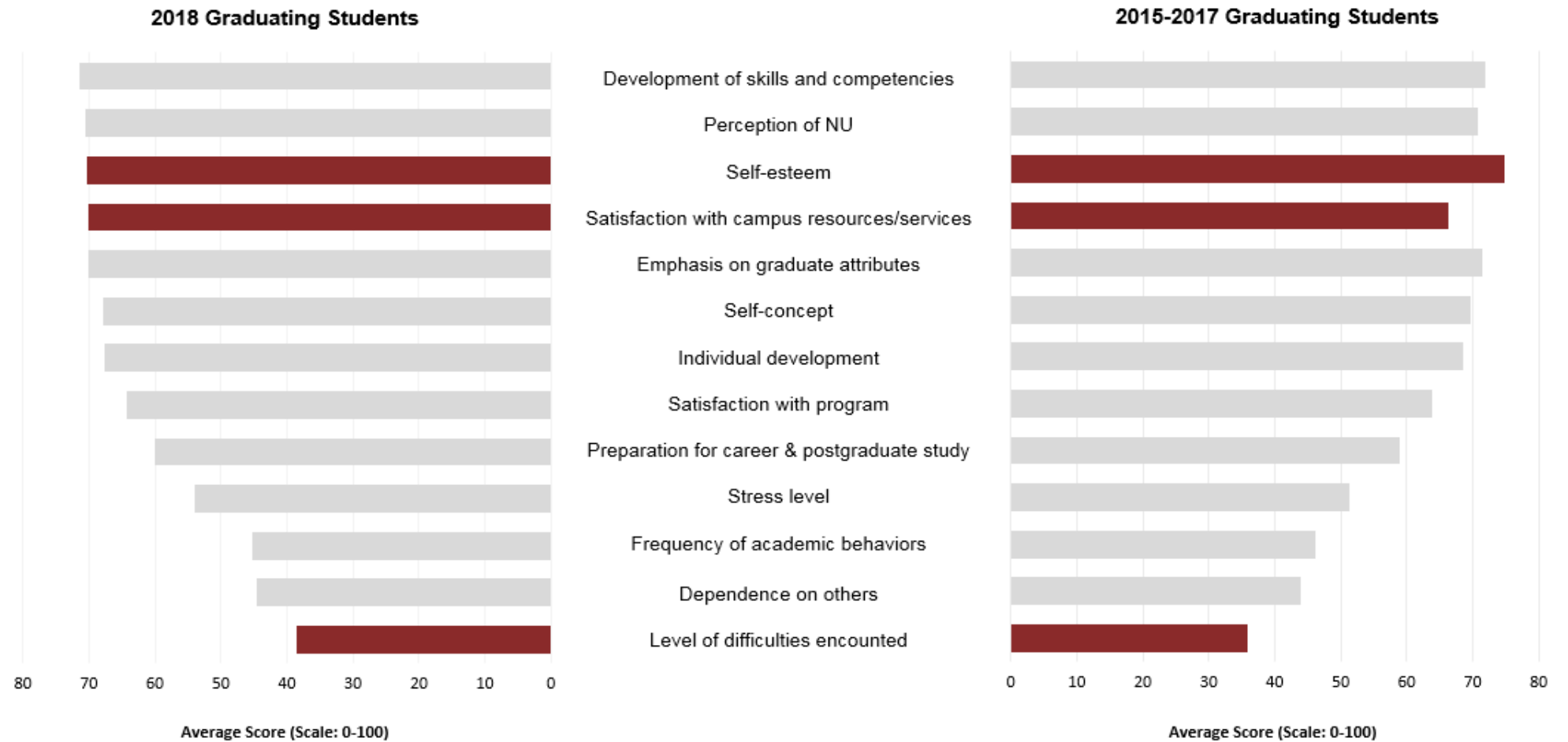
- *Perception of NU*: a measure based on eight items that assessed how positive students were about their NU experience
- *Program satisfaction*: a measure based on 10 items that assessed how satisfied students were with different aspects of their undergraduate program
- *Curricular preparation (for career and postgraduate studies)*: a measure based on two items that assessed how well the undergraduate curriculum prepared students for career opportunities and graduate/professional studies
- *Development of skills and competencies*: a measure based on 17 items that assessed the extent to which students developed certain skills and competencies
- *Institutional emphasis on graduate attributes*: a measure based on eight items that assessed how well NU emphasized each graduate attribute during students' undergraduate studies
- *Frequency of academic behaviors*: a measure based on 10 items that measured how frequently students engaged in certain academic behaviors, as well as the number of hour spent on class preparation and number of classes missed during the term
- *Level of difficulties encountered*: a measure based on 12 items that measured how difficult students found different aspects of their undergraduate experience to be
- *Dependence on others*: a psychological measure based on five items that assessed how much the student depended on other people for emotional, social, and/or academic support during undergraduate studies
- *Self-concept*: a psychological measure based on three items that assessed how well students perceived their own competence relative to other students in their program
- *Self-esteem*: a psychological measure based on five items that assessed how well students perceived their own worth or merit, relative to the "ideal" self
- *Stress level*: a psychological measure based on five items that measured how stressful different aspects of students' experiences were
- *Satisfaction with campus resources and services*: a measure based on 12 items that measured how satisfied students were with various campus resources, services, and facilities
- *Individual development*: a measure based on three items that assessed how well NU met student needs for personal growth, intellectual growth, and career preparation

Figure 4 compares the perceptions and experiences of the 2018 graduating class to those of students who graduated before 2018. Table 2 provides detailed descriptive on each composite indicator, overall and by school. Tables 3 through 5 provide average scores on composite indicators by department/major.

I.2. Composite Indicators: 2018 Graduates and Previous Graduating Classes Compared

Figure 4. Graduating students' perceptions and experiences as measured by 13 composite indicators

Students who graduated in 2018 had slightly lower levels of **self-esteem**; were slightly more satisfied with **campus resources and services**; and encountered slightly greater **difficulties** during their undergraduate studies compared to previous graduating cohorts.



I.3. Composite Indicators: Average Scores Overall and by School

Table 2. Descriptive statistics on composite indicators overall and by school (Scale: 0 –100)

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	<i>Median</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Median</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Median</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Median</i>	<i>N</i>
Perception of NU	70.6	17.6	72.5	413	68.7	18.5	70.7	118	73.3	15.3	75.0	119	70.1	18.3	72.5	176
Satisfaction with program	64.3	16.6	64.7	410	60.4	16.2	62.2	118	69.2	14.5	68.9	119	63.6	17.4	64.4	173
Curricular preparation (for career & postgraduate study)	60.1	19.4	62.5	408	61.7	17.7	62.5	116	60.9	18.4	62.5	119	58.5	21.1	62.5	173
Development of skills and competencies	71.5	13.8	72.9	404	69.5	14.0	70.6	115	75.1	12.2	75.9	116	70.5	14.3	71.8	173
Institutional emphasis on graduate attributes	70.1	17.3	72.5	396	69.2	17.1	70.0	111	73.5	15.7	75.0	115	68.3	18.3	72.5	170
Frequency of academic behaviors	45.2	14.4	45.3	388	45.0	14.3	45.7	107	46.6	14.3	46.9	114	44.5	14.5	44.6	167
Level of difficulties encountered	38.6	14.3	38.3	384	37.7	13.2	38.3	107	38.0	13.7	38.3	113	39.5	15.3	39.2	164
Dependence on others (family, friends, faculty, staff)	44.5	17.6	46.7	378	43.7	15.2	46.7	104	46.1	16.2	46.7	111	44.0	19.8	46.7	163
Self-concept (perception of own competence relative to others)	67.8	21.3	66.7	379	70.0	22.0	75.0	104	69.4	18.7	66.7	111	65.4	22.3	66.7	164
Self-esteem (perception of own worth relative to "ideal" self)	70.3	23.0	76.0	377	70.1	24.7	76.0	104	75.2	19.2	76.0	110	67.0	23.9	72.0	163
Stress level	53.9	19.4	53.3	377	51.5	18.8	53.3	104	58.2	17.8	60.0	110	52.5	20.5	53.3	163
Satisfaction with campus resources and services	70.2	14.3	69.4	371	72.0	13.7	70.8	103	67.7	15.5	66.7	110	70.7	13.7	69.7	158
Individual development (career prep and intellectual/personal growth)	67.6	19.6	66.7	375	65.9	18.4	66.7	104	71.9	17.5	75.0	111	65.7	21.2	66.7	160

Item scale: 0 = "Lowest value", 100 = "Highest value"; SD = Standard Deviation; Median = middle value (half scoring above and half below this value)

I.4. Composite Indicators: Average Scores by Department/Major

Table 3. Composite indicators: Average scores by Engineering program (Scale: 0 –100)

	Chem Eng (N=20)	Civil Eng (N=29)	Elec Eng (N=43)	Mech Eng (N=26)	School Average
Perception of NU	63.4	69.5	71.2	67.7	68.7
Satisfaction with program	51.6	57.4	64.3	64.0	60.4
Curricular preparation (for career & postgraduate study)	58.8	60.2	63.1	63.5	61.7
Development of skills and competencies	66.3	67.7	71.0	71.6	69.5
Institutional emphasis on graduate attributes	66.0	71.2	68.8	70.3	69.2
Frequency of academic behaviors	41.0	41.8	50.3	43.5	45.0
Level of difficulties encountered	37.9	38.7	40.1	32.3	37.7
Dependence on others (family, friends, faculty, staff)	41.4	39.5	48.5	42.7	43.7
Self-concept (perception of own competence relative to others)	65.4	66.0	72.1	75.0	70.0
Self-esteem (perception of own worth relative to “ideal” self)	68.0	65.1	72.8	73.5	70.1
Stress level	52.6	56.2	52.4	43.6	51.5
Satisfaction with campus resources and services	71.5	74.3	71.1	71.3	72.0
Individual development (career prep and intellectual/personal growth)	60.1	70.8	64.9	67.0	65.9

Legend

	More than five points below the school average
	Within five points of the school average
	More than 5 points above the school average

Table 4. Composite indicators: Average scores by Humanities and Social Sciences program (Scale: 0 –100)

	Economics (N=52)	Pol Sc & Intl Rel (N=48)	Other Programs (N=19)	School Average
Perception of NU	73.0	74.2	72.0	73.3
Satisfaction with program	66.2	71.6	71.8	69.2
Curricular preparation (for career & postgraduate study)	61.3	58.3	66.4	60.9
Development of skills and competencies	75.0	75.2	75.2	75.1
Institutional emphasis on graduate attributes	71.0	75.1	76.7	73.5
Frequency of academic behaviors	43.6	47.0	53.8	46.6
Level of difficulties encountered	34.6	40.0	42.0	38.0
Dependence on others (family, friends, faculty, staff)	42.6	48.7	48.5	46.1
Self-concept (perception of own competence relative to others)	73.1	68.0	63.0	69.4
Self-esteem (perception of own worth relative to “ideal” self)	79.1	72.9	71.1	75.2
Stress level	52.3	65.0	56.7	58.2
Satisfaction with campus resources and services	66.7	66.8	72.4	67.7
Individual development (career prep and intellectual/personal growth)	70.5	71.3	77.3	71.9

Legend

	More than five points below the school average
	Within five points of the school average
	More than 5 points above the school average

Table 5. Composite indicators: Average scores (0-100 scale) by Science and Technology program

	Biology (N=56)	Chemistry (N=14)	Computer Sc (N=38)	Math & Phys (N=51)	Robotics (N=17)	School Average
Perception of NU	72.8	65.5	69.6	71.5	61.9	70.1
Satisfaction with program	65.1	55.5	63.5	65.2	60.8	63.6
Curricular preparation (for career & postgraduate study)	57.3	54.5	62.5	60.0	52.2	58.5
Development of skills and competencies	72.3	71.1	71.9	69.0	65.0	70.5
Institutional emphasis on graduate attributes	70.0	69.1	68.4	69.2	59.4	68.3
Frequency of academic behaviors	45.2	53.7	41.6	43.0	44.5	44.5
Level of difficulties encountered	44.0	35.0	40.3	36.1	37.4	39.5
Dependence on others (family, friends, faculty, staff)	44.2	49.5	44.1	42.4	42.9	44.0
Self-concept (perception of own competence relative to others)	65.2	63.1	68.6	66.0	59.4	65.4
Self-esteem (perception of own worth relative to “ideal” self)	65.0	67.4	78.8	62.2	62.8	67.0
Stress level	55.6	50.5	52.2	51.6	47.5	52.5
Satisfaction with campus resources and services	70.9	72.2	69.9	73.4	60.7	70.7
Individual development (career prep and intellectual/personal growth)	67.2	65.5	67.9	65.8	55.6	65.7

Legend

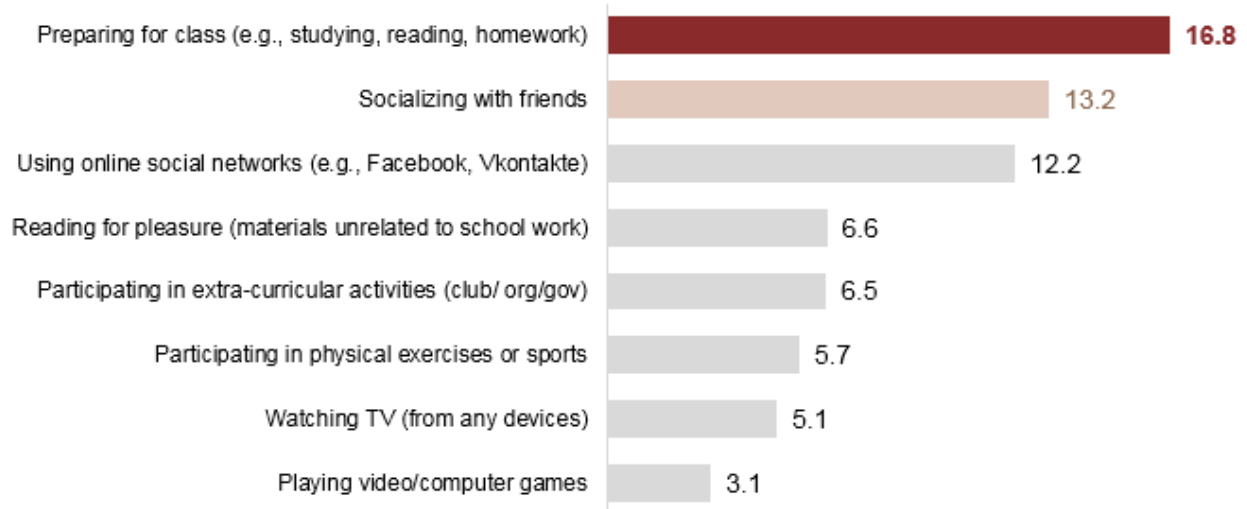
	More than five points below the school average
	Within five points of the school average
	More than 5 points above the school average

II. OTHER EXPERIENCES

II.1. Time allocation

Figure 5. Number of hours students allocated to different activities²

Undergraduate students spent more time on **class preparation** than they did on any other activity. Students, however, spent only 3.5 hours (per week) more on **class preparation** than they did on **socializing with friends**.



² Time allocation estimates are subjects to the limitations of retrospective measures of time use (see, for instance, Brint & Cantwell, 2010) and to the point estimates typically used to derive averages (Fosnacht, McCormick, & Lerma, 2018; McCormick, 2011). Consequently, the average number of hours should be viewed as an estimate rather than a precise measure of time use (see Fosnacht et al., 2018).

II.2. Class Absenteeism: Frequency and Reasons

Figure 6. Number of classes missed during the term

Only about 10% of the students indicated that they **did not miss any classes** during the semester. On average, students missed five classes during the semester.

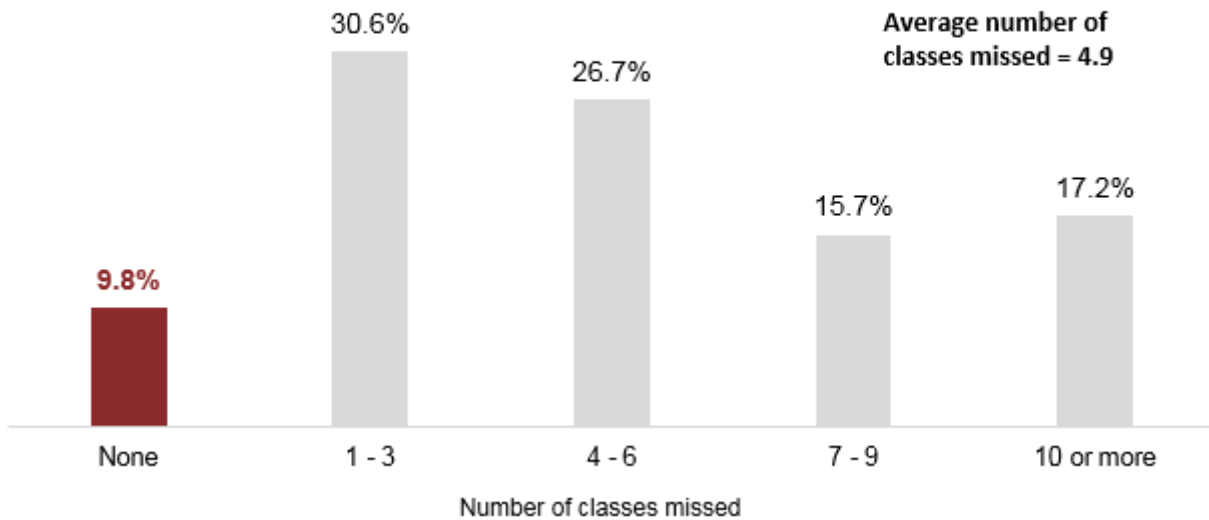
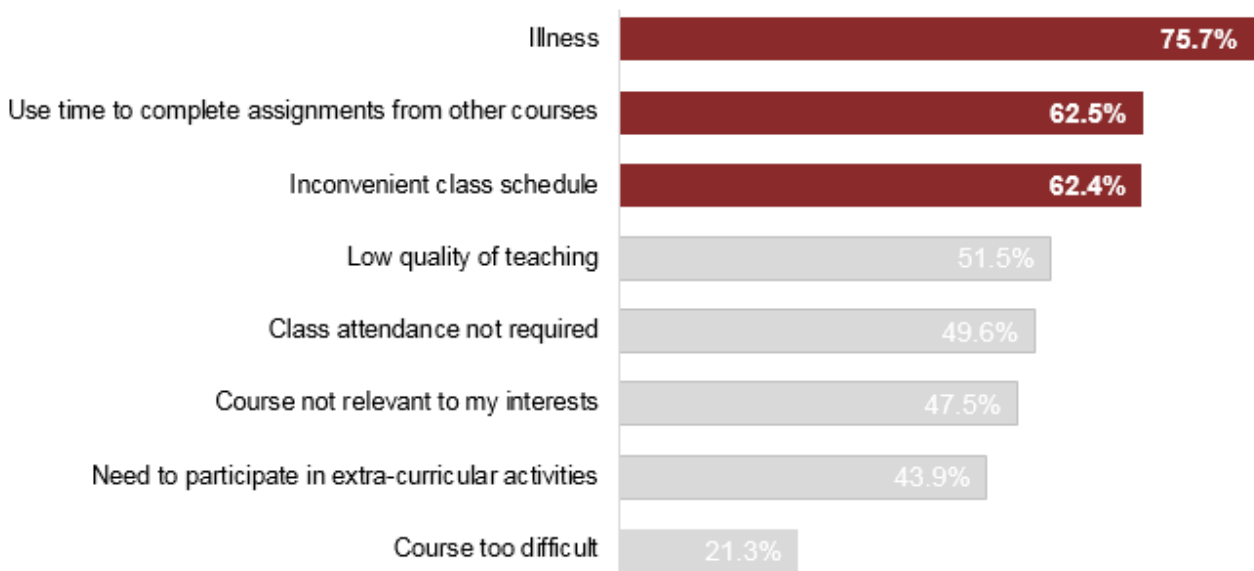


Figure 7. Students' reasons for missing class

Illness, using class time to complete assignments from other courses, and inconvenient class schedule were the most common reasons for missing classes.



II.3. Writing

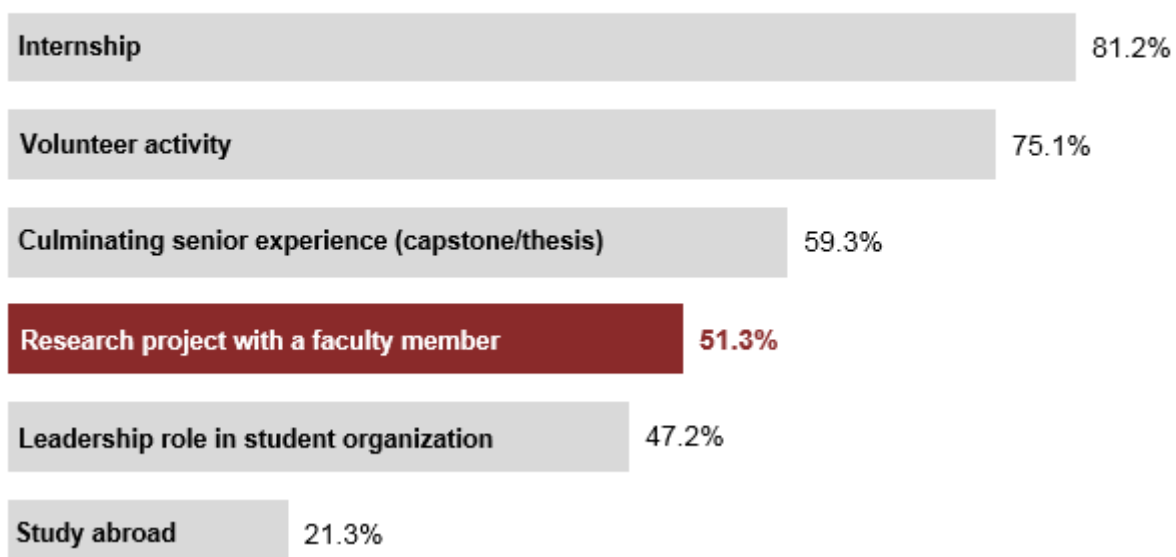
Figure 8. Number of papers/reports produced in the final year



II.4. Completion of Enriching Activities

Figure 9. Percent of graduating students who completed enriching activities during their undergraduate studies

More than half of the graduating students indicated that they worked on a **research project with a faculty member**.



II.5. Sleeping Behavior

Figure 10. Number of days students had enough sleep and felt rested

Students typically had enough sleep and felt rested **3 to 4 days (out of 7) a week.**

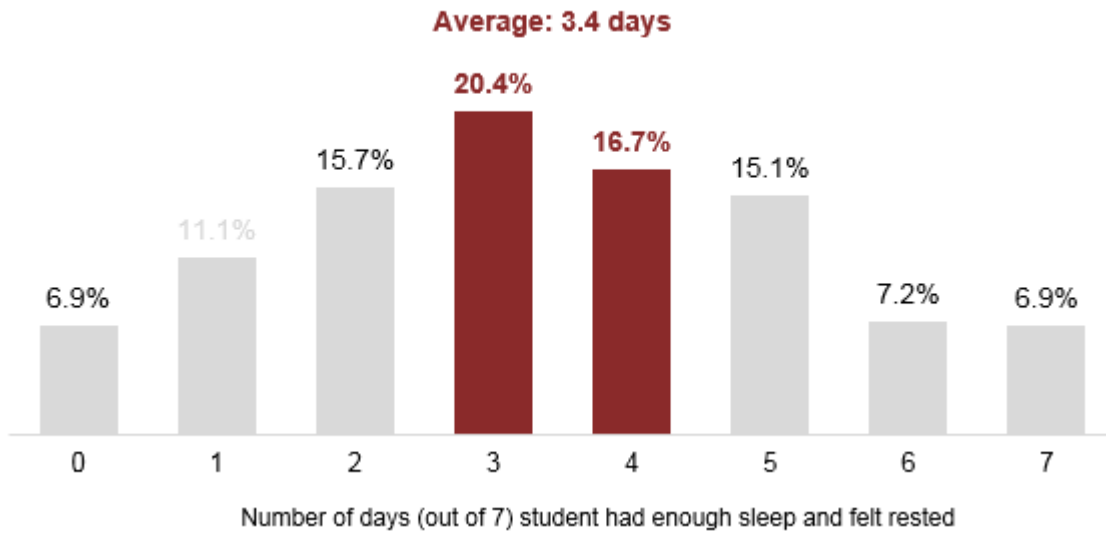
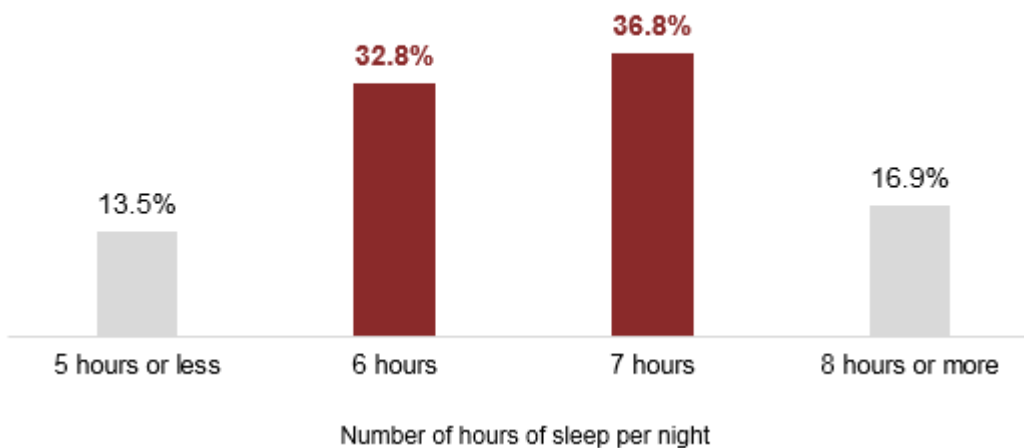


Figure 11. Number of hours of sleep per night

Overall, 70% of the students indicated that they slept **6 to 7 hours per night.**



II.6. Postgraduation plans

Figure 12. Primary activity after graduation

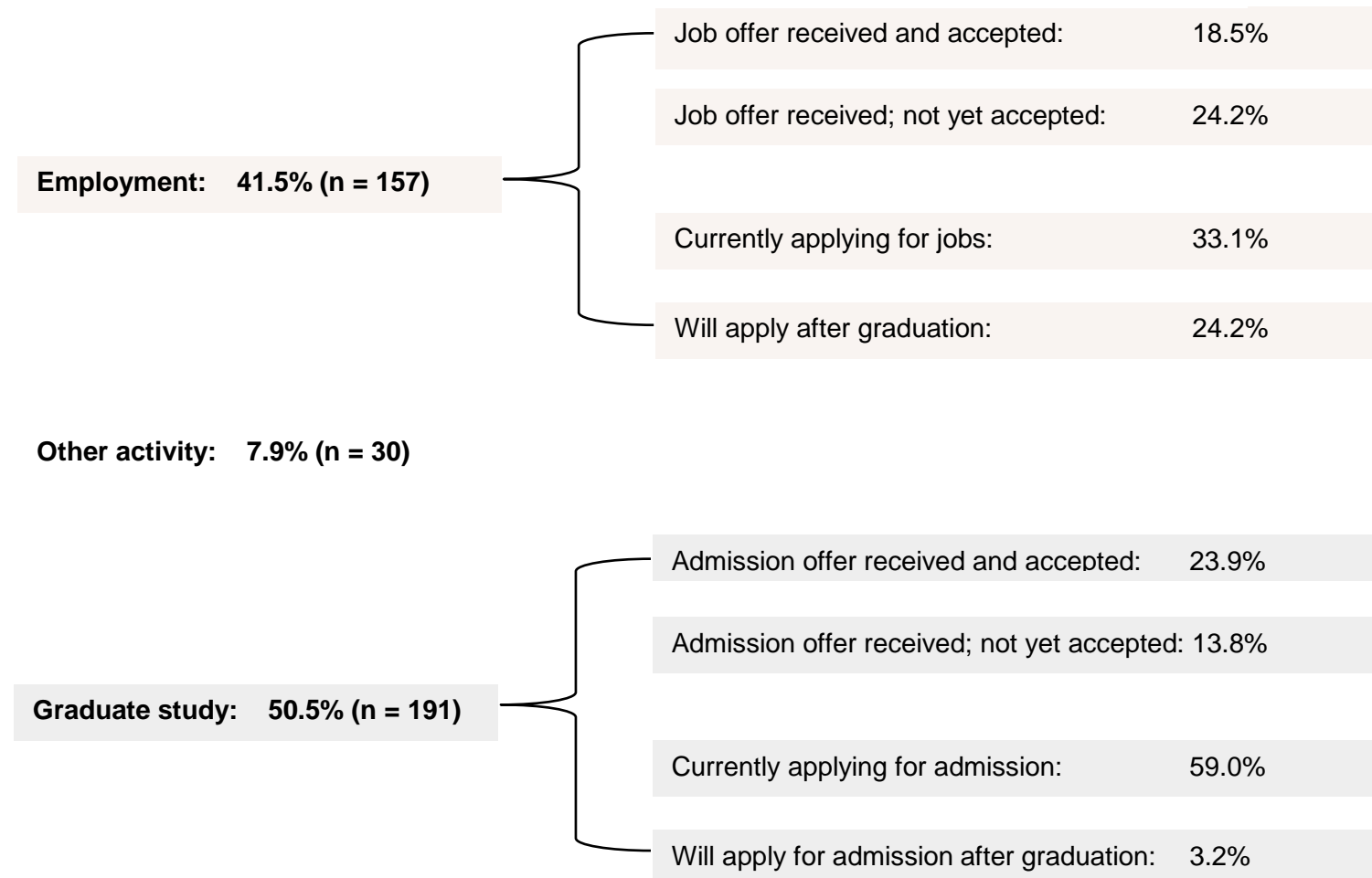


Figure 13. Prospective post-graduate degree (N=190)

The vast majority of graduating students planned to pursue a **master's degree**.

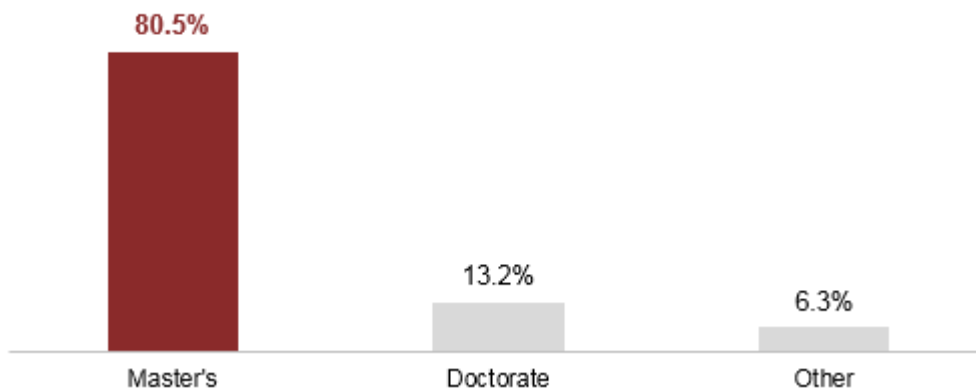


Figure 14. Prospective postgraduate field of study (N=191)

Science and Technology and **Humanities and Social Sciences** were the two most popular fields among students who planned to pursue postgraduate studies.

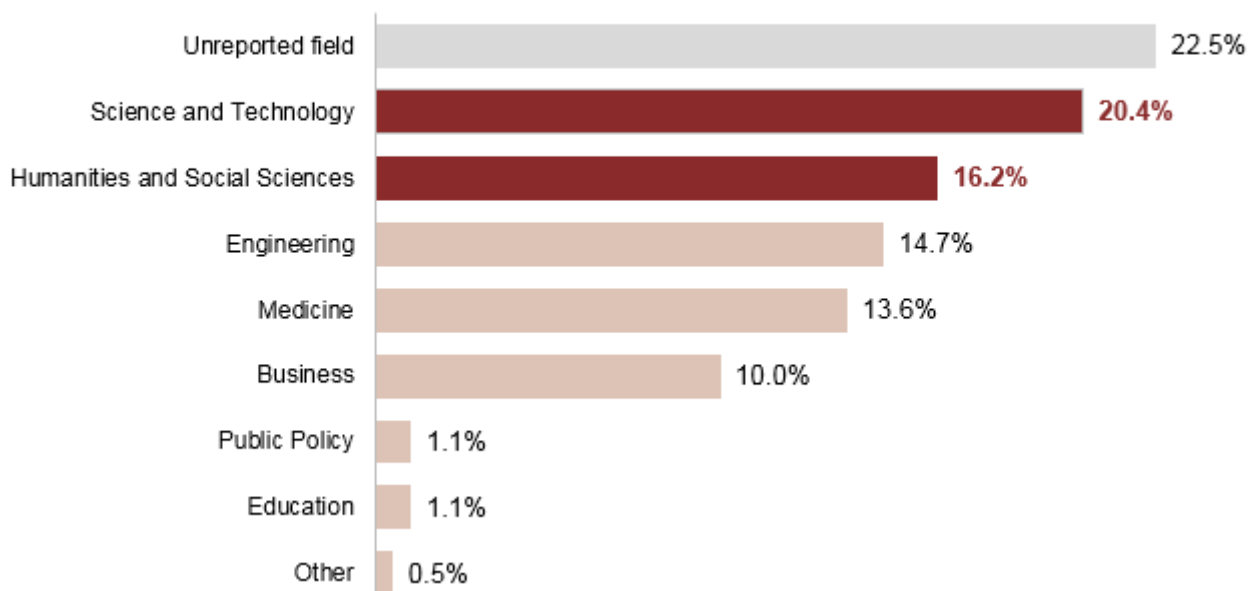


Table 6. Prospective postgraduate institution (N=191)

	Count ³	Percent
NU	66	34.6
King Abdullah University of Science and Technology		
Central European University		
Columbia University		
Okinawa Institute of Science and Technology		
University of California Los Angeles		
Dartmouth College		
Johns Hopkins University		
University of Rochester		
University of Warwick		
University of Wisconsin Madison		
Alicante University		
American University		
Budapest Metropolitan University		
Georgia Institute of Technology		
Grenoble Alpes University		
Heilderberg University		
Hongkong University of Science and Technology		
Illinois state university		
KazGuu University		
LUISS Guido Carli University		
McMaster University		
Northwestern University		
Oxford University		
Penn State University		
Politechnic University of Milan		
Politecnico de Milano/UCL		
Purdue University		
Ryerson University		
Sapienza University		
Shanghai Jiaotong University		
Skoltech University		
Stuttgart University		
Tsinghua University		
USTC		
University of Alberta		
University of Amsterdam		
University of Arizona		
University of Bristol		
University of California Davis		
University of Chicago		

³ For confidential purposes, counts (and percentages) are displayed only when five or more students reported a particular institution.

University of Clermont Auvergne		
University of Colorado Boulder		
University of Leuven		
University of Lille 1		
University of Notre Dame		
University of Queensland		
University of Shenzhen		
University of Sorbonne		
Unreported	61	31.9
Total	191	100.0

Table 7. Prospective country for postgraduate studies (N=191)

	Count ⁴	Percent
Kazakhstan	67	35.1
USA	22	11.5
UK	8	4.2
China	5	2.6
France		
Saudi Arabia		
Canada		
Hungary		
Italy		
Japan		
Germany		
Australia		
Belgium		
Hong Kong		
Russia		
Spain		
The Netherlands		
Unreported	61	31.9
Total	191	100.0

⁴ For confidential purposes, counts (and percentages) are displayed only when five or more students reported a particular country.

II.7. Employment during the academic year

Figure 15. Student Employment during the academic year

Over half of the students indicated that they **worked for pay** during the academic year. Of those employed, 73% worked in both fall and spring semesters.



Figure 16. Number of work hours per week (for working students)

Most students who were employed worked **up to 10 hours per week**.

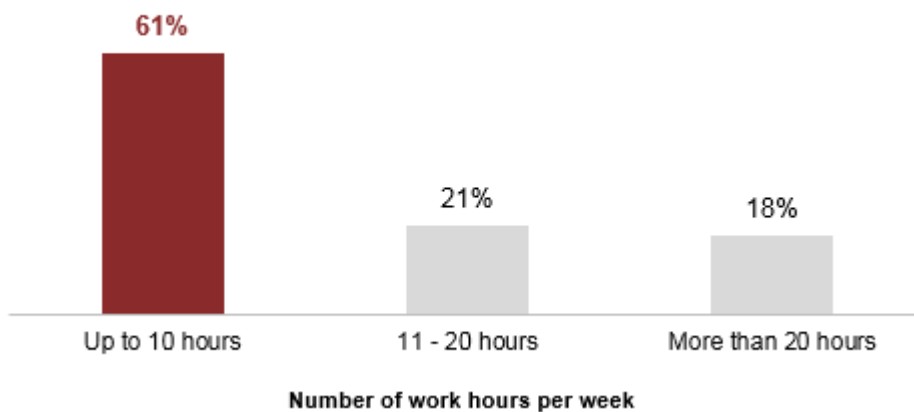
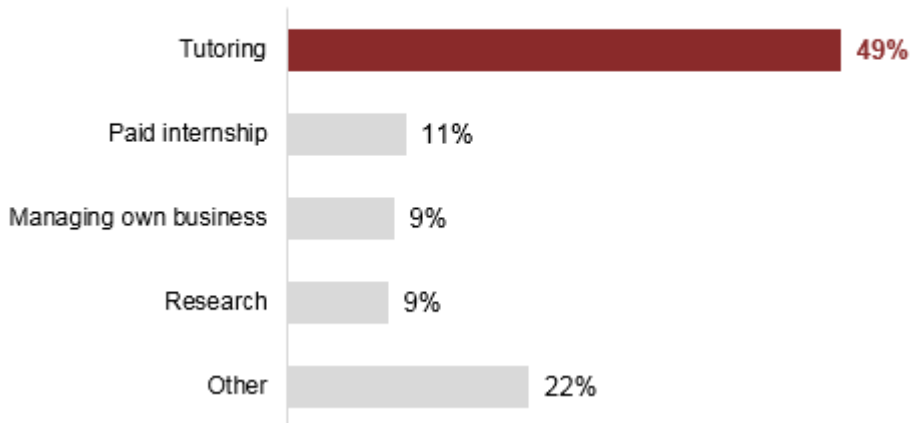


Figure 17. Types of student employment activities

About half of the students who were employed worked as **tutors**.



III. NARRATIVE COMMENTS: TOP THEMES

Figure 18. What NU could have done/changed to improve students' experience

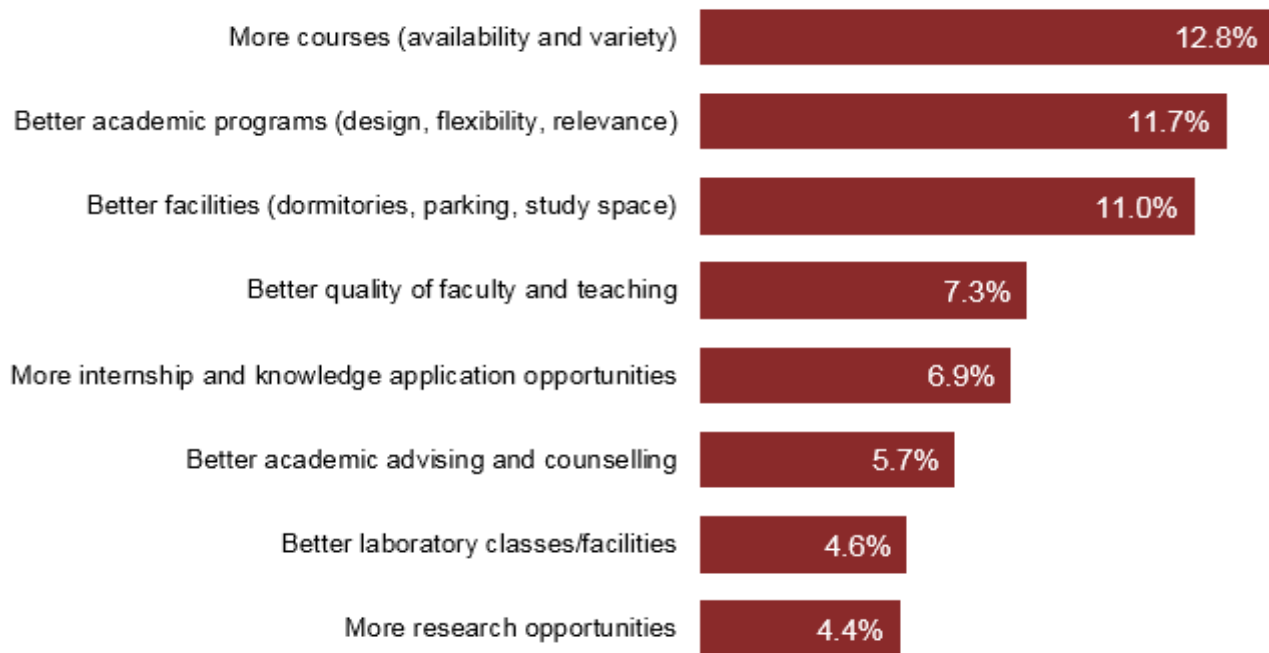


Figure 19. Most positive/meaningful interactions with faculty members

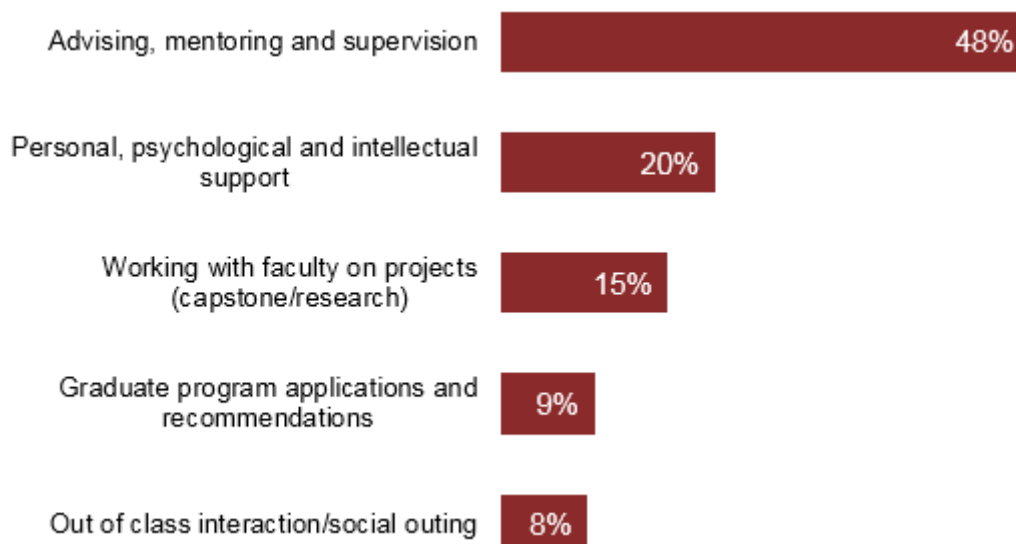
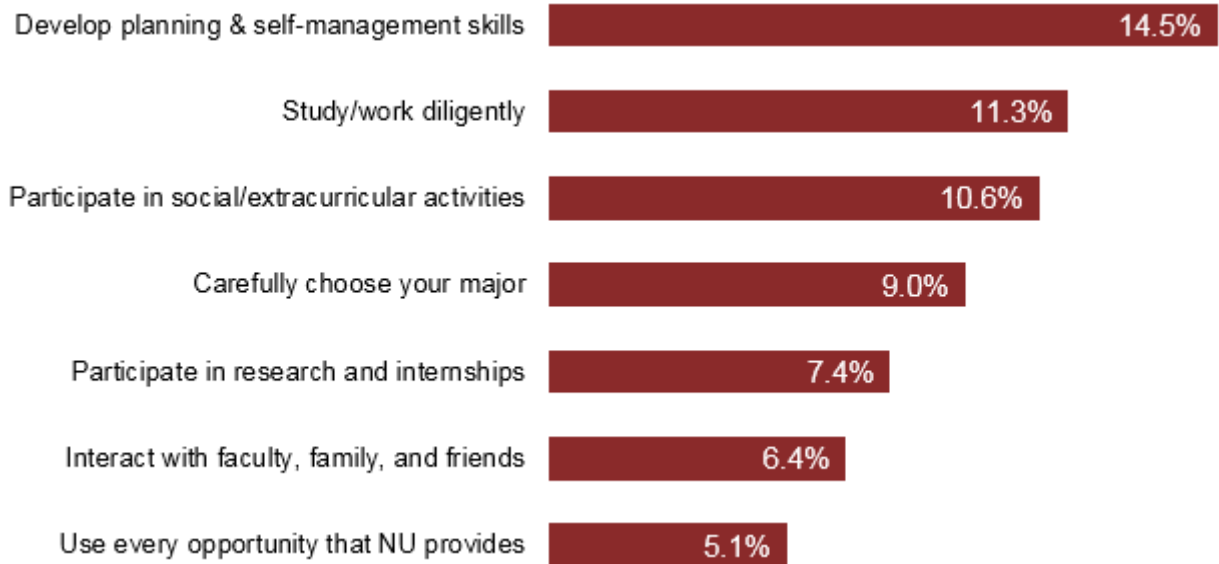


Figure 20. Graduates' advice to new Nazarbayev University students



IV. APPENDICES

A. Detailed Statistics on Perception of NU Experiences

Table 8. Please indicate the extent to which you agree or disagree with each of the following statements (Scale: 1 – 6).

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	<i>% “5” or “6”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “5” or “6”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “5” or “6”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “5” or “6”</i>	<i>N</i>
(1) NU has helped me meet the goals I came here to achieve.	4.5	1.0	52.8	413	4.4	1.0	45.8	118	4.6	0.9	51.3	119	4.6	1.0	58.5	176
(2) My experiences here have helped motivate me to make something of my life.	4.7	1.1	63.8	412	4.8	1.1	63.6	118	4.8	1.0	64.7	119	4.7	1.2	63.4	175
(3) I am proud of my accomplishments at NU.	4.5	1.3	56.2	411	4.5	1.4	57.3	117	4.6	1.2	53.4	118	4.5	1.3	57.4	176
(4) I believe student feedback is used effectively to improve student learning.	3.9	1.4	33.6	408	3.8	1.3	30.5	118	4.1	1.3	35.3	116	3.9	1.4	34.5	174
(5) If I had to start over again, I would still choose to come to NU.	4.7	1.4	62.9	412	4.6	1.5	61.9	118	4.9	1.3	67.2	119	4.6	1.4	60.6	175
(6) If I had to start over again, I would still choose the same field of study.	4.1	1.7	46.7	411	3.7	1.7	37.9	116	4.2	1.6	49.6	119	4.2	1.7	50.6	176
(7) I would recommend NU to other potential students.	5.1	1.1	74.2	411	5.1	1.1	74.4	117	5.3	1.0	82.2	118	4.9	1.1	68.8	176
(8) I am satisfied with the overall education I received at NU.	4.7	1.1	63.9	410	4.6	1.0	58.6	116	5.0	0.9	74.6	118	4.6	1.1	60.2	176

Item scale: 1 = “Strongly disagree”, 6 = “Strongly agree”; SD = Standard Deviation; % “5” or “6”: Percent who selected the highest two response categories (“5” or “6”)

B. Detailed Statistics on Satisfaction with Program

Table 9. Please rate your satisfaction or dissatisfaction with each of the following aspects of your major/program (Scale: 1 – 6).

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>
(1) Quality of teaching	4.4	1.0	49.9	407	4.2	1.0	40.7	118	4.8	0.9	64.4	118	4.4	1.0	46.2	171
(2) Assessment procedures	4.3	1.0	45.0	409	4.2	1.0	36.4	118	4.6	0.9	57.6	118	4.3	1.0	42.2	173
(3) Quality of academic advising	4.3	1.1	46.4	407	4.1	1.0	33.1	118	4.7	0.9	64.1	117	4.1	1.3	43.6	172
(4) Availability of courses you wanted to take	3.5	1.3	20.3	408	3.4	1.3	17.1	117	3.4	1.3	18.6	118	3.6	1.3	23.7	173
(5) Variety of courses offered	3.5	1.3	22.5	409	3.3	1.3	16.2	117	3.6	1.3	25.2	119	3.6	1.4	24.9	173
(6) Availability of your instructors out of class	4.7	1.0	64.8	406	4.5	0.9	57.3	117	4.9	1.1	72.0	118	4.7	1.0	64.9	171
(7) Faculty concern for your academic progress	4.0	1.3	39.1	409	3.8	1.3	29.7	118	4.3	1.1	46.2	119	3.9	1.4	40.7	172
(8) Ability to meet the expectations you had at the beginning	4.1	1.1	37.6	410	4.0	1.1	27.1	118	4.3	1.1	46.2	119	4.1	1.2	38.7	173
(9) NU’s ability to meet the expectations you had	4.2	1.1	43.5	409	4.1	1.1	40.2	117	4.4	1.0	52.1	119	4.2	1.1	39.9	173
(10) Your overall experience in your major/program	4.3	1.1	46.8	410	4.2	1.1	43.2	118	4.5	1.0	48.7	119	4.3	1.2	48.0	173

Item scale: 1 = “Very dissatisfied”, 6 = “Very satisfied”; SD = Standard Deviation; % “5” or “6”: Percent who selected the highest two response categories (“5” or “6”)

C. Detailed Statistics on Curricular Preparation for Career and Postgraduate Study

Table 10. How well has your undergraduate curriculum prepared you for (Scale: 1 – 5)?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	<i>% “4” or “5”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “4” or “5”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “4” or “5”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “4” or “5”</i>	<i>N</i>
(1) Career opportunities	3.2	0.9	34.4	410	3.3	0.8	39.8	118	3.1	0.9	29.4	119	3.2	1.0	34.1	173
(2) Graduate/professional studies	3.6	0.9	55.6	408	3.6	0.8	56.9	116	3.8	0.8	63.9	119	3.5	1.0	49.1	173

Item scale: 1 = “Very inadequately”, 5 = “Very well”; SD = Standard Deviation; % “4” or “5”: Percent who selected the highest two response categories (“4” or “5”)

D. Detailed Statistics on Development of Skills and Competencies

Table 11. How would you rate yourself in the following skills and abilities (Scale: 1 – 6)?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	<i>% “5” or “6”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “5” or “6”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “5” or “6”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “5” or “6”</i>	<i>N</i>
(1) Time management	3.9	1.2	31.5	409	3.7	1.2	24.6	118	4.1	1.3	40.7	118	3.8	1.2	30.1	173
(2) Writing	4.1	1.0	35.3	408	3.9	1.1	29.7	118	4.6	0.8	48.3	118	4.0	1.0	30.2	172
(3) Oral communication	4.3	1.1	50.0	408	4.2	1.1	48.3	118	4.6	1.0	60.7	117	4.2	1.1	43.9	173
(4) Research	4.3	1.1	43.4	408	4.2	1.1	39.8	118	4.5	1.0	53.4	118	4.1	1.2	39.0	172
(5) Presentation	4.6	0.9	62.5	408	4.5	0.9	57.6	118	4.8	0.9	68.6	118	4.6	1.0	61.6	172
(6) Leadership	4.4	1.2	48.8	408	4.3	1.2	47.5	118	4.7	1.0	59.3	118	4.2	1.2	42.4	172
(7) Problem-solving	4.9	0.9	68.2	409	4.8	0.9	65.3	118	5.0	0.8	73.7	118	4.8	1.0	66.5	173
(8) Self-management (e.g. emotions, stress, life challenges)	4.6	1.2	60.9	409	4.6	1.1	61.0	118	4.8	1.2	66.1	118	4.4	1.2	57.2	173
(9) Search and retrieve information using technology	5.0	0.9	74.1	401	4.9	0.9	67.0	115	5.2	0.8	80.0	115	5.1	0.9	74.9	171
(10) Critically evaluate information for decision-making	4.9	0.8	69.1	404	4.7	0.8	57.4	115	5.1	0.7	82.8	116	4.8	0.9	67.6	173
(11) Focus on a task in spite of distractions	4.3	1.1	44.1	404	4.2	1.1	40.9	115	4.3	1.2	49.1	116	4.2	1.1	42.8	173
(12) Work in a team or group	4.7	1.0	62.2	402	4.8	1.0	65.8	114	4.8	1.0	60.3	116	4.7	1.1	61.0	172
(13) Work independently	5.1	0.9	81.5	401	5.0	0.9	72.8	114	5.3	0.7	90.4	115	5.1	0.9	81.4	172

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	% "5" or "6"	<i>N</i>	<i>Mean</i>	<i>SD</i>	% "5" or "6"	<i>N</i>	<i>Mean</i>	<i>SD</i>	% "5" or "6"	<i>N</i>	<i>Mean</i>	<i>SD</i>	% "5" or "6"	<i>N</i>
(14) Use techniques, skills, & modern tools for professional success	4.8	1.0	64.4	402	4.7	0.9	59.6	114	4.8	0.9	67.0	115	4.8	1.1	65.9	173
(15) Apply knowledge and skills in real-world settings	4.5	1.1	52.1	403	4.3	1.1	45.6	114	4.5	1.1	53.4	116	4.6	1.1	55.5	173
(16) Confidence in your ability to achieve your goals	4.6	1.1	58.3	403	4.6	1.2	61.4	114	4.6	1.0	55.2	116	4.6	1.1	58.4	173
(17) Motivation to learn new things	4.9	1.1	72.4	402	4.8	1.2	70.8	113	5.1	1.0	79.3	116	4.9	1.2	68.8	173

Item scale: 1 = "Major weakness", 6 = "Major strength"; SD = Standard Deviation; % "5" or "6": Percent who selected the highest two response categories ("5" or "6")

E. Detailed Statistics on Institutional Emphasis on Graduate Attributes

Table 12. How much emphasis did NU put on each of the following during your undergraduate studies (Scale: 1 – 6)?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>
(1) In-depth/sophisticated understanding of domain of study	4.2	1.0	40.2	396	4.1	1.0	33.3	111	4.4	1.0	42.6	115	4.2	1.0	42.9	170
(2) Intellectually curious, creative and open-minded	4.6	1.1	57.1	396	4.5	1.1	54.1	111	4.8	0.9	67.8	115	4.4	1.1	51.8	170
(3) Thoughtful decision-maker who knows how to involve others	4.4	1.1	49.2	396	4.4	1.1	51.4	111	4.4	1.1	53.9	115	4.3	1.1	44.7	170
(4) Able to create new opportunities	4.3	1.1	46.3	395	4.3	1.2	46.4	110	4.3	1.1	49.6	115	4.3	1.1	44.1	170
(5) Communicate effectively across cultures and languages	4.6	1.1	58.5	395	4.6	1.1	55.9	111	4.8	1.0	68.7	115	4.5	1.1	53.3	169
(6) Tolerant of people of different beliefs/values/backgrounds	4.9	1.1	69.4	396	4.7	1.1	64.0	111	5.2	1.0	77.4	115	4.8	1.2	67.6	170
(7) Develop high moral values	4.6	1.2	57.1	394	4.5	1.1	53.2	111	4.8	1.1	64.6	113	4.5	1.3	54.7	170
(8) Take a leading role in the development of your country	4.5	1.2	55.3	396	4.6	1.2	58.6	111	4.6	1.3	60.0	115	4.3	1.3	50.0	170

Item scale: 1 = “Weak emphasis”, 6 = “Strong emphasis”; SD = Standard Deviation; % “5” or “6”: Percent who selected the highest two response categories (“5” or “6”)

F. Detailed Statistics on Time Usage

Table 13. During the current academic year, about how many hours per week (7 days) did you spend doing the following activities?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i> <i>(hours)</i>	<i>SD</i>	<i>% 26</i> <i>hours</i> <i>or more</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% 26</i> <i>hours</i> <i>or more</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% 26</i> <i>hours</i> <i>or more</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% 26</i> <i>hours</i> <i>or more</i>	<i>N</i>
(1) Preparing for class (studying, reading, doing homework)	16.8	8.7	20.8	390	17.4	8.6	22.0	109	17.4	8.6	22.1	113	16.0	8.8	19.0	168
(2) Participating in extra-curricular activities (club/organization)	6.5	6.9	2.8	391	7.0	7.0	3.7	109	6.8	6.9	2.6	114	6.0	6.8	2.4	168
(3) Socializing with friends	13.2	7.5	8.4	391	13.4	7.1	8.3	109	13.5	7.7	9.6	114	12.9	7.7	7.7	168
(4) Participating in physical exercises or sports	5.7	5.8	1.3	390	6.1	6.3	0.9	108	5.5	5.5	0.9	114	5.7	5.7	1.8	168
(5) Watching TV (from any devices)	5.1	6.9	2.3	389	4.5	6.2	0.9	108	5.0	6.9	2.6	114	5.5	7.3	3.0	167
(6) Reading for pleasure (books/materials unrelated to school work)	6.6	6.6	2.6	390	7.5	6.9	3.7	109	6.0	6.4	1.8	114	6.3	6.4	2.4	167
(7) Playing video/computer games	3.1	6.1	1.5	388	4.1	7.4	2.8	107	1.5	4.5	0.9	114	3.5	5.9	1.2	167
(8) Using online social networks (Facebook, Vkontakte)	12.2	8.5	10.5	390	11.6	8.5	11.0	109	12.2	7.8	8.8	114	12.6	8.9	11.4	167

Original scale: 1 = "0 hours", 8 = "More than 30 hours"; average number of hours was estimated using the midpoints corresponding to the response options; SD = Standard Deviation; % 26 hours or more: Percent who selected the highest two response categories ("26-30 hours" or "More than 30 hours").

G. Detailed Statistics on Frequency of Academic Behaviors

Table 14. During the current academic year, about how often have you done each of the following (Scale 1 – 4)?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	% “3” or “4”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “3” or “4”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “3” or “4”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “3” or “4”	<i>N</i>
(1) Study or work with other students on course assignments/projects	2.8	0.8	59.6	386	3.2	0.8	78.5	107	2.7	0.8	53.1	113	2.6	0.7	51.8	166
(2) Work on research projects with faculty members	2.0	0.9	26.0	388	2.3	1.0	41.1	107	1.7	0.8	13.2	114	2.1	0.9	25.1	167
(3) Discuss your academic performance with a faculty member	2.0	0.8	21.7	387	1.8	0.8	17.0	106	2.1	0.7	23.7	114	2.1	0.7	23.4	167
(4) Discuss course topics/ideas/ with faculty outside class	2.2	0.8	26.6	387	2.1	0.7	23.4	107	2.3	0.8	29.8	114	2.1	0.8	26.5	166
(5) Prepare 2 or more drafts of an assignment before submitting it	2.0	0.9	27.8	389	1.9	0.8	18.7	107	2.1	0.9	34.2	114	2.1	0.9	29.2	168
(6) Participate in class discussions	2.6	0.8	51.3	388	2.5	0.8	42.1	107	2.9	0.8	64.0	114	2.5	0.8	48.5	167
(7) Use NU library for academic purposes	2.7	0.9	54.3	387	2.5	0.9	43.0	107	2.8	0.9	60.2	113	2.7	0.9	57.5	167
(8) Come to class without completing readings or assignments	2.2	0.8	26.1	387	2.1	0.8	26.2	107	2.2	0.8	27.4	113	2.2	0.7	25.1	167
(9) Find course so interesting that you did more work than was required	2.2	0.8	30.7	387	2.1	0.8	28.0	107	2.2	0.7	31.9	113	2.2	0.8	31.7	167

Item scale: 1 = “Never”, 4 = “Very often”; SD = Standard Deviation; % “3” or “4”: Percent who selected the highest two response categories (“3” or “4”)

H. Detailed Statistics on Class Attendance

Table 15. During the current term, about how many times did you miss classes for any reason?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	% "6"	<i>N</i>	<i>Mean</i>	<i>SD</i>	% "6"	<i>N</i>	<i>Mean</i>	<i>SD</i>	% "6"	<i>N</i>	<i>Mean</i>	<i>SD</i>	% "6"	<i>N</i>
	<i>or more</i>				<i>or more</i>				<i>or more</i>				<i>or more</i>			
(1) Number of classes missed for any reason during the current term	4.9	3.3	32.9	389	4.8	3.4	32.4	108	4.8	3.3	31.6	114	5.1	3.3	34.1	167

Original scale: 1 = "None", 5 = "10 or more"; however, average number of classes missed was estimated using the midpoints corresponding to the response options; SD = Standard Deviation; % "6" or more: Percent who selected the highest two response categories ("7-9" or "10 or more").

Table 16. For each item below, please indicate if it was a major, minor, or not a reason for missing classes this term.

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Not a</i>	<i>Minor</i>	<i>Major</i>	<i>N</i>	<i>Not a</i>	<i>Minor</i>	<i>Major</i>	<i>N</i>	<i>Not a</i>	<i>Minor</i>	<i>Major</i>	<i>N</i>	<i>Not a</i>	<i>Minor</i>	<i>Major</i>	<i>N</i>
	<i>reason</i>	<i>reason</i>	<i>reason</i>		<i>reason</i>	<i>reason</i>	<i>reason</i>		<i>reason</i>	<i>reason</i>	<i>reason</i>		<i>reason</i>	<i>reason</i>	<i>reason</i>	
	(%)	(%)	(%)		(%)	(%)	(%)		(%)	(%)	(%)		(%)	(%)	(%)	
(1) Low quality of teaching	48.5	28.9	22.6	336	48.8	30.2	20.9	86	60.2	24.5	15.3	98	7.2	29.9	28.7	152
(2) Inconvenient class schedule	37.6	35.8	26.6	338	31.0	36.8	32.2	87	49.0	35.0	16.0	100	40.8	30.9	28.3	151
(3) Need to participate in extra-curricular activities	56.1	28.7	15.2	342	57.3	24.7	18.0	89	52.0	31.0	17.0	100	33.8	35.8	30.5	153
(4) Use class time to complete assignments from other courses	37.5	42.8	19.6	341	38.6	44.3	17.0	88	38.6	39.6	21.8	101	58.2	29.4	12.4	152
(5) Course not relevant to my interests	52.5	28.5	19.0	337	55.3	28.2	16.5	85	57.0	27.0	16.0	100	36.2	44.1	19.7	152
(6) Course too difficult for me	78.7	14.8	6.5	338	81.4	17.4	1.2	86	84.0	9.0	7.0	100	48.0	29.6	22.4	152
(7) Class attendance not required	50.4	27.6	22.0	337	65.1	20.9	14.0	86	57.0	25.0	18.0	100	73.7	17.1	9.2	151
(8) Illness	24.3	24.3	51.5	342	30.3	36.0	33.7	89	18.8	13.9	67.3	101	37.7	33.1	29.1	152

I. Detailed Statistics on Difficulties Encountered

Table 17. How difficult did you find the following to be during your undergraduate studies (Scale: 1 – 6)?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>
(1) Learning course material	3.5	1.1	17.7	384	3.6	1.1	16.8	107	3.4	1.1	13.3	113	3.6	1.1	21.3	164
(2) Managing your time effectively	4.0	1.3	37.8	384	4.0	1.3	38.3	107	4.0	1.3	34.5	113	4.1	1.3	39.6	164
(3) Interacting with faculty members	3.1	1.2	12.2	384	3.2	1.3	16.8	107	3.0	1.1	8.8	113	3.1	1.2	11.6	164
(4) Living away from home	2.3	1.4	7.3	381	2.0	1.3	6.5	107	2.5	1.5	10.8	111	2.4	1.3	5.5	163
(5) Using English for academic purposes	2.2	1.2	3.9	382	2.1	1.2	2.8	106	2.2	1.2	4.5	112	2.3	1.2	4.3	164
(6) Covering (paying) living expenses	3.2	1.4	20.1	383	3.0	1.5	16.8	107	3.4	1.4	24.1	112	3.2	1.4	19.5	164
(7) Learning effectively on your own	2.9	1.2	8.4	383	2.9	1.2	7.5	107	2.8	1.2	8.0	112	2.9	1.3	9.1	164
(8) Working effectively with others	3.0	1.2	10.2	383	2.8	1.1	3.7	107	3.0	1.2	9.8	112	3.0	1.3	14.6	164
(9) Using technology for academic purposes	2.2	1.1	3.7	383	2.2	1.0	1.9	106	2.2	1.1	2.7	113	2.1	1.2	5.5	164
(10) Meeting deadlines	3.3	1.3	16.8	382	3.4	1.1	12.1	107	3.2	1.3	17.0	112	3.3	1.4	19.6	163
(11) Figuring out courses needed for degree	2.7	1.4	12.8	382	2.7	1.5	14.0	107	2.6	1.4	8.9	112	2.9	1.4	14.7	163
(12) Getting accurate info about degree requirements	2.7	1.4	11.5	384	2.6	1.3	7.5	107	2.5	1.4	9.7	113	2.9	1.4	15.2	164

Item scale: 1 = “Not at all difficult”, 6 = “Very difficult”; SD = Standard Deviation; % “5” or “6”: Percent who selected the highest two response categories (“5” or “6”)

J. Detailed Statistics on Writing and other Activities Completed

Table 18. During the current academic year, about how many papers, reports, or other writing tasks of the following lengths have you completed?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	<i>% “7”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “7”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “7”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “7”</i>	<i>N</i>
	<i>or more</i>				<i>or more</i>				<i>or more</i>				<i>or more</i>			
(1) Up to 5 pages	6.7	3.3	57.2	362	7.0	3.1	61.6	99	7.8	2.9	72.0	107	5.8	3.5	44.2	156
(2) More than 5 pages	5.3	3.4	35.2	369	7.0	2.8	58.1	105	5.8	3.3	36.4	107	3.8	3.2	19.1	157

Original scale: 1 = “None”, 5 = “10 or more”; however, average number of papers was estimated using the midpoint corresponding to the response option; SD = Standard Deviation; % “4” or “5”: Percent who selected the highest two response categories (“7-9” or “10 or more”).

Table 19. Which of the following activities have you done so far?

	All Schools			Engineering			Humanities & Social Sciences			Science & Technology		
	<i>Yes</i>	<i>No</i>	<i>N</i>	<i>Yes</i>	<i>No</i>	<i>N</i>	<i>Yes</i>	<i>No</i>	<i>N</i>	<i>Yes</i>	<i>No</i>	<i>N</i>
(1) Participate in an internship	81.2	18.8	382	92.5	7.5	106	86.6	13.4	112	70.1	29.9	164
(2) Participate in a study abroad program	21.3	78.7	380	21.9	78.1	105	24.1	75.9	112	19.0	81.0	163
(3) Participate in a volunteer activity	75.1	24.9	381	74.5	25.5	106	83.0	17.0	112	69.9	30.1	163
(4) Hold formal leadership role in student organization/group	47.2	52.8	377	45.7	54.3	105	56.4	43.6	110	42.0	58.0	162
(5) Work with a faculty member on a research project	51.3	48.7	380	62.3	37.7	106	34.2	65.8	111	55.8	44.2	163
(6) Culminating senior experience (capstone, thesis.)	59.3	40.7	378	98.1	1.9	106	32.4	67.6	111	52.2	47.8	161

K. Detailed Statistics on Psychological Factors

Table 20. How would you rate yourself on the following factors, relative to other students in your program (Scale: 1 – 5)?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	% “4” or “5”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “4” or “5”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “4” or “5”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “4” or “5”	<i>N</i>
(1) Academic ability relative other students in program	3.6	1.0	56.2	379	3.6	1.0	56.7	104	3.8	0.9	60.4	111	3.5	1.1	53.0	164
(2) Motivation to succeed relative to other students in program	3.8	1.0	67.5	379	3.8	1.0	67.3	104	3.9	0.9	72.1	111	3.8	1.1	64.6	164
(3) Self-confidence	3.7	1.1	58.3	379	4.0	1.1	71.2	104	3.6	1.0	53.2	111	3.6	1.1	53.7	164

Item scale: 1 = “Bottom 10%”, 5 = “Top 10%”; SD = Standard Deviation; % “4” or “5”: Percent who selected the highest two response categories (“4” or “5”)

Table 21. How much did you depend on the following groups for support (emotional, social, and/or academic) during your undergraduate studies (Scale: 1 – 4)?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	<i>% “3” or “4”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “3” or “4”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “3” or “4”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “3” or “4”</i>	<i>N</i>
(1) Family members	2.8	0.9	64.2	377	2.8	0.8	63.5	104	3.0	0.8	71.2	111	2.8	1.0	59.9	162
(2) Friends	2.9	0.8	71.2	378	2.8	0.8	68.3	104	3.0	0.8	73.9	111	2.9	0.8	71.2	163
(3) Classmates	2.0	0.8	26.7	378	2.1	0.8	32.7	104	1.9	0.8	18.0	111	2.0	0.9	28.8	163
(4) Faculty	2.3	0.9	38.4	378	2.1	0.8	34.6	104	2.4	0.9	41.4	111	2.3	0.9	38.7	163
(5) Administrative staff (department, school, or central level)	1.6	0.8	13.5	377	1.6	0.8	15.4	104	1.6	0.7	11.7	111	1.7	0.8	13.6	162

Item scale: 1 = “None at all”, 4 = “A lot”; SD = Standard Deviation; % “3” or “4”: Percent who selected the highest two response categories (“3” or “4”)

Table 22. To what extent do you agree or disagree with the following statements (Scale: 1 – 6)?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “5” or “6”	<i>N</i>
(1) I feel I am a person of worth, at least on an equal plane with others	4.7	1.4	64.7	377	4.6	1.5	58.7	104	5.0	1.1	79.1	110	4.5	1.4	58.9	163
(2) I take a positive attitude toward myself	4.6	1.3	59.9	377	4.6	1.4	60.6	104	4.8	1.1	64.5	110	4.4	1.3	56.4	163
(3) On the whole, I am satisfied with myself	4.3	1.4	50.1	377	4.3	1.4	52.9	104	4.6	1.3	54.5	110	4.1	1.4	45.4	163
(4) I am able to do things as well as most other people	4.8	1.2	66.1	375	4.8	1.3	68.0	103	5.0	1.0	73.6	110	4.6	1.3	59.9	162
(5) I have high self-esteem	4.2	1.3	45.1	375	4.2	1.4	47.1	104	4.3	1.3	48.2	110	4.1	1.3	41.6	161

Item scale: 1 = “Strongly disagree”, 6 = “Strongly agree”; SD = Standard Deviation; % “5” or “6”: Percent who selected the highest two response categories (“5” or “6”)

Table 23. Below are potential sources of stress that you may have experienced as a student. Please indicate how each has affected you during your undergraduate studies (Scale: 1 – 4).

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	% “3” or “4”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “3” or “4”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “3” or “4”	<i>N</i>	<i>Mean</i>	<i>SD</i>	% “3” or “4”	<i>N</i>
(1) Managing the workload for your courses	2.6	0.8	53.5	376	2.6	0.8	51.9	104	2.8	0.8	59.1	110	2.5	0.8	50.6	162
(2) Personal difficulties with family or friends	2.4	1.0	44.3	377	2.2	1.0	35.6	104	2.5	1.0	50.0	110	2.4	1.0	46.0	163
(3) Balancing multiple commitments (academic, extracurricular, personal)	2.5	0.9	50.4	377	2.4	0.8	50.0	104	2.7	0.9	60.0	110	2.5	0.9	44.2	163
(4) Concerns about finances	2.4	0.9	47.1	376	2.4	0.8	38.5	104	2.5	1.0	50.0	110	2.5	0.9	50.6	162
(5) Concerns about future plans (e.g., employment, graduate studies)	3.1	0.9	75.6	377	3.1	0.9	76.9	104	3.2	0.8	79.1	110	3.0	0.9	72.4	163

Item scale: 1 = “Not a source of stress”, 4 = “Very stressful”; SD = Standard Deviation; % “3” or “4”: Percent who selected the highest two response categories (“3” or “4”)

L. Detailed Statistics on Satisfaction with Campus Resources and Services

Table 24. Please rate your level of satisfaction or dissatisfaction with each of the following University services or facilities below. If an item does not apply to you, please select "Not Applicable" (Scale: 1 – 4).

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	<i>% "3" or "4"</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% "3" or "4"</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% "3" or "4"</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% "3" or "4"</i>	<i>N</i>
(1) Library resources and services	3.6	0.6	97.6	368	3.6	0.6	97.1	102	3.6	0.6	95.5	110	3.7	0.5	99.4	156
(2) IT resources and services	3.1	0.7	86.8	365	3.2	0.6	90.2	102	3.0	0.7	79.0	105	3.2	0.6	89.9	158
(3) Classroom and lab facilities	3.2	0.6	89.8	364	3.2	0.6	89.0	100	3.2	0.7	85.6	104	3.3	0.6	93.1	160
(4) Career and advising services	3.2	0.7	88.1	344	3.2	0.7	90.0	100	3.2	0.7	87.1	101	3.1	0.7	87.4	143
(5) Student health services	2.8	0.8	70.6	347	3.0	0.7	83.0	94	2.7	0.8	58.4	101	2.8	0.8	71.1	152
(6) Psychological counseling services	3.0	0.7	81.4	210	3.1	0.7	83.9	56	3.0	0.7	81.4	59	2.9	0.8	80.0	95
(7) Student disability services	2.9	0.7	82.1	140	3.0	0.8	86.1	36	2.8	0.8	70.7	41	3.0	0.6	87.3	63
(8) Sports Center services	3.2	0.7	89.1	312	3.2	0.7	86.9	84	3.1	0.7	90.1	91	3.2	0.6	89.8	137
(9) Food services	2.9	0.7	72.9	365	2.9	0.8	74.3	101	2.8	0.7	72.6	106	2.9	0.8	72.2	158
(10) Student housing facilities	3.1	0.8	82.1	358	3.2	0.7	87.2	94	3.0	0.8	80.2	106	3.0	0.8	80.4	158
(11) Parking services	2.8	0.9	74.1	158	2.9	0.9	82.1	39	2.6	1.1	64.2	53	2.9	0.8	77.3	66
(12) Safety and security on campus	3.1	0.8	84.9	351	3.2	0.8	87.8	98	3.0	0.9	79.8	104	3.1	0.7	86.6	149

Item scale: 1 = "Very dissatisfied", 4 = "Very satisfied"; SD = Standard Deviation; % "3" or "4": Percent who selected the highest two response categories ("3" or "4")

M. Detailed Statistics on Individual Development

Table 25. How well has NU met your needs in each of the following areas (Scale: 1 – 5)?

	All Schools				Engineering				Humanities & Social Sciences				Science & Technology			
	<i>Mean</i>	<i>SD</i>	<i>% “4” or “5”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “4” or “5”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “4” or “5”</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>% “4” or “5”</i>	<i>N</i>
(1) Career preparation (curricular and extra-curricular activities)	3.3	1.0	40.8	375	3.3	0.9	42.3	104	3.2	1.0	36.9	111	3.3	0.9	42.5	160
(2) Intellectual growth	3.9	0.9	71.5	375	3.8	0.8	69.2	104	4.2	0.8	84.7	111	3.8	0.9	63.8	160
(3) Personal growth	3.9	0.9	69.9	375	3.8	1.0	63.5	104	4.2	0.8	82.0	111	3.8	1.0	65.6	160

Item scale: 1 = “Very inadequately”, 5 = “Very well”; SD = Standard Deviation; % “4” or “5”: Percent who selected the highest two response categories (“4” or “5”)

N. Response Rates by Key Student Characteristics

Table 26. Response rates by student characteristics

	Graduating Student Headcount	Survey Response Rate (%)
<i>School</i>		
Engineering	162	73.5
Humanities & Social Sciences	158	75.3
Science & Technology	208	84.6
<i>Gender</i>		
Female	270	83.0
Male	258	73.6
<i>Academic Achievement</i>		
Low achieving (below median GPA)	267	75.7
High-achieving (above median GPA)	261	81.2
Overall	528	78.4

Statistically, response rates were higher for Science and Technology compared to other schools and higher for female compared to male students. The difference in response rates by level of academic achievement was not statistically significant.

O. Dealing with Non-Response Bias

Analysis of student participation in the survey revealed statistically significant differences in response rates between Science and Technology (SST) and other schools and between male and female students. SST students were more likely to participate in the survey compared to their non-SST counterparts. Female students were also more likely to participate in the survey compared to their male counterparts. There was no difference in response rate by level of academic ability.

Differences in response rates across sub-groups can lead to non-response bias, particularly if these sub-groups also differ on survey variables (Kalton, 1983; Pike, 2008). In fact, we found differences not only in response rates (by gender and school) but also in students' scores on three of the 13 composite indicators. Weighting adjustments have been recommended as a solution to non-response bias. In this analysis, we computed and used weights (based on gender, school, and academic performance) to adjust for non-response. We then compared weighted and unweighted results but found negligible differences between the two sets of results. Therefore, we retained and reported unweighted statistics.

P. Limitations: Precision of Survey Results

Information collected through surveys is almost always prone to error. There are different sources of survey error, including sampling error, coverage error, non-response error, measurement error (e.g., Biemer, Groves, Lyberg, Mathiowetz, & Sudman, 1991; Braverman, 1996; Dillman, 2007; Fowler, 2008; Groves, 1989; Groves et al., 2009; Krosnick, 1991; Krosnick, Narayan, & Smith, 1996).

Sampling error was not a concern in this study because the Undergraduate Exit Survey was administered to all potential graduating students (and not to a sample of students). Likewise, coverage error was not a concern because all members of the target population had equal chance of being included in the study. Results of our analyses also suggest non-response error was not likely to be a major concern in this study. Although we found differences due to school and gender in survey response rates and in some of the survey measures, we determined that adjusting for non-response bias was unnecessary given that summary statistics did not change before and after non-response adjustment (see discussion on non-response bias in *Appendix O*).

Measurement error, however, is always a threat in survey research. This error “occurs when a respondent’s answer to a survey question is inaccurate, imprecise, or cannot be compared in any useful way to other respondents’ answers” (Dillman, 2007, p. 9). Measurement error can result from different sources: the wording or organization of the survey instrument, the respondent, the mode of survey administration, and the interviewer (Braverman, 1996). This last source (interviewer) does not apply to the Entering Student Survey because this survey is self-administered. It is, however, important to recognize that students’ responses may have been affected by the survey instrument itself or from respondents’ inherent characteristics. With respect to the survey instrument, it is possible for a response to be inaccurate or imprecise because the question was unclear to the respondent or because of issues related to the structure or sequence of the questions (Braverman, 1996). We attempted to minimize this type of error by paying closer attention to the survey design stage (e.g., we adapted some of the questions from existing survey instruments and solicited feedback from multiple stakeholders. With respect to the respondent error, it is possible that some students misreported perceptions and/or facts. For example, a respondent may agree with an assertion in a survey item without regard to content—a phenomenon described as *acquiescence* (Krosnick et al., 1996) and which can be due, among other things, to a tendency to be “polite and agreeable” (Krosnick, 2000). The respondent may also select the response option that appears to be reasonable or acceptable, instead of producing the mental effort necessary to provide an optimal response—a phenomenon called *satisficing* (Krosnick, 1991; Krosnick et al., 1996). Therefore, the precision of the results of this survey may be limited by some of the sources of measurement error discussed here.

Finally, the precision of survey estimates may be affected by item non-response (the percentage of individuals who did not respond to a specific survey question), given that it is unlikely that all participant will respond to every item on the survey. In this survey, item non-response ranged from 0% to 10.3% for close-ended questions that applied to all participants. The survey yielded a high completion rate: 91% of the participants submitted a complete survey. According to standards by the American Association for Public Opinion Research (2008), a survey is “complete” when a participant responds to more than 80% of applicable questions. In the present study, 91% of the participants responded to more than 80% of the questions on the survey. It is therefore unlikely that item non-response will have a drastic effect on the precision of survey estimates.

Q. Computing Composite Indicators

Composite scores were computed based on Principal Component Analysis and reliability analysis. We used the Linear Stretch Method (de Jonge, Veenhoven, & Arends, 2014) to transform original scales to a scale from 0 to 100. We then computed composite scores (on the new scale) by averaging a respondent's scores on relevant scale items, provided that the respondent answered to at least half of the items on that scale. Table 27 displays the composite scores created, along with the number of items and the scale reliability coefficient (a measure of the internal reliability/consistency of scale items). Reliability coefficients were high, though a few coefficients were slightly below the 0.7 level suggested by Nunnally (1978).

Table 27. Composite scores created, number of items used, and scale reliability

Composite Indicator	Number of items on the scale ¹	Scale reliability (Cronbach's alpha)	Item listing
(1) Perception of NU (institutional level)	8	0.85	Table 8
(2) Program satisfaction	9	0.89	Table 9
(3) Curricular preparation (career and further studies)	2	0.67*	Table 10
(4) Development of skills and competencies	17	0.91	Table 11
(5) Graduate attribute emphasis	8	0.90	Table 12
(6) Frequency of academic behaviors	10	0.69*	Table 14**
(7) Level of difficulties encountered	12	0.80	Table 17
(8) Dependence on others (family, friends, faculty, staff)	5	0.62*	Table 21
(9) Self-concept	3	0.78	Table 20
(10) Self-esteem	5	0.92	Table 22
(11) Stress level	5	0.66*	Table 23
(12) Satisfaction with campus resources and services	12	0.83	Table 24
(13) Individual development	3	0.81	Table 25

* These values are slightly below the 0.70 level widely used in empirical research. In his earlier work, Nunnally (1967) had indicated that values ranging from 0.50 to 0.60 were acceptable for early research stages.

** In addition to frequency of certain behaviors, the analyses also included the number of hours per week the student spent preparing for classes and the number of times the student missed classes during the term (this last variable was reverse-coded so that students who missed few classes were assigned higher scores).

¹ Results of Principal Component Analysis revealed that perception of NU, program satisfaction, curricular preparation, graduate attribute emphasis, self-concept, self-esteem, stress level, satisfaction with campus resources and services, and individual development were unidimensional. In other words, items on these scales loaded on a single factor. Although we also retained a single factor for skills and competencies, frequency of academic behavior, level of difficulties, and dependence on others, there was some evidence that these scales may measure more than one construct or dimension.

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