



IUPUI
National Survey of Student Engagement
Report for
School of Science
2018



IUPUI's Vision

To be a leading urban research institution recognized for the success of its students, its advances in health and life sciences, and its intellectual, economic, and cultural contributions to the well-being of the citizens of Indianapolis, the state of Indiana, and beyond.

Welcome to the 2018 School of Science NSSE Report

The National Survey of Student Engagement (NSSE) was developed to document dimensions of quality in undergraduate education and provides information and assistance to colleges, universities, and other organizations to improve student learning. The final NSSE report consists of 12 scales, referred to as Engagement Indicators. These Engagement Indicators are grouped into four over-arching themes: Academic Challenge, Learning with Peers, Experiences with Faculty, and Campus Environment. In addition, NSSE also asks students about their engagement in High Impact Practices (HIPs) and the amount of time they spend engaged in various activities.

The following report is a summary of responses from the School of Science compared to students enrolled in similar programs at other institutions that participated in NSSE. This report uses effect size to quantify differences between your school and peer means. Effect size is a measure of the magnitude of the difference between two means. Effect size differences for the NSSE Engagement Indicators can be interpreted at the number of standard deviations between the mean for your school and the mean for students majoring in similar programs at IUPUI peer institutions. Items are labeled as “Areas of Strength” (an effect size of 0.21 standard deviations greater than the benchmark programs average), “Asset to Protect” (between 0.05 and 0.2 standard deviations), “Issue to be Mindful of” (between -0.05 and -0.2 standard deviations below), and “Opportunity for Improvement” (-0.21 or more below the mean). A total of 138 First-year and 175 Senior students in the School of Science had completed the survey.



2018 NSSE Report for School of Science

Key Highlights Overall

- Twenty-seven percent of Senior respondents plan to work more than 20 hours for pay off campus weekly. Twenty percent of First years plan to spend more than 20 hours a week preparing for class and fifteen percent relaxing and socializing.
- School of Science Seniors completed all high impact practices at a higher rate than their peers, with 25% more completing service learning, 18% more completing a culminating senior experience, and 11% more participating in a learning community.
- School of Science First Years had similar high impact practice completion rates compared to their peers, the greatest difference being 9% more participation in learning communities than their peers.
- There is a large significant difference between IUPUI Seniors and Peer students, with IUPUI Seniors rating significantly higher in **Quality of Interactions**.
- **IUPUI First Years** reported significantly lower averages for **Higher-Order Learning and Reflective & Integrative Learning** than their Peers.

The table below displays the NSSE Engagement Indicators that are considered “Areas of Strength” and “Opportunities for Improvement” for the School of Science. For more information about the NSSE Engagement Indicators or the NSSE in general, please see http://nsse.indiana.edu/html/engagement_indicators.cfm.

Areas of Strength and Opportunities for Improvement

	Areas of Strength	Opportunities for Improvement
Seniors	Higher-Order Learning Quantitative Reasoning Student-Faculty Interaction Effective Teaching Practices Quality of Interactions	Reflective and Integrative Learning Learning Strategies Supportive Environment
First Year	Student-Faculty Integration Effective Teaching Practices Quality of Interactions	Higher-Order Learning Reflective and Integrative Learning Quantitative Reasoning Discussions with Diverse Others

Table 1
Academic Challenge
Senior

	N	Mean	Standard Deviation	Peer Mean	Effect Size
Higher-Order Learning ^{a1}	166	39.2	12.8	37.6	0.44
Applying facts, theories, or methods to practical problems or new situations	167	3.18	0.77	3.0	
Analyzing an idea, experience, or line of reasoning in depth by examining its parts	168	3.08	0.79	3.0	
Evaluating a point of view, decision, or information source	168	2.74	0.87	2.7	
Forming a new idea or understanding from various pieces of information	168	2.85	0.82	2.8	
Reflective & Integrative Learning ^{b4}	172	34.6	11.3	36.2	-0.46
Combined ideas from different courses when completing assignments	174	2.83	0.73	2.8	
Connected your learning to societal problems or issues	173	2.58	0.91	2.6	
Included diverse perspectives (political, religious, racial/ethnic, gender, etc.) in course discussions or assignments	174	2.28	0.92	2.4	
Examined the strengths and weaknesses of your own views on a topic or issue	174	2.64	0.80	2.8	
Tried to better understand someone else's views by imagining how an issue looks from his or her perspective	173	2.90	0.78	2.9	
Learned something that changed the way you understand an issue or concept	170	2.83	0.76	2.9	
Connected ideas from your courses to your prior experiences and knowledge	171	3.06	0.70	3.1	
Learning Strategies ^{b4}	162	37.2	13.2	38.2	-0.27
Identified key information from reading assignments	162	3.00	0.74	3.1	
Reviewed your notes after class	162	2.84	0.90	2.9	
Summarized what you learned in class or from course materials	162	2.75	0.84	2.8	
Quantitative Reasoning ^{b1}	161	32.5	14.9	30.9	0.41
Reached conclusions based on your own analysis of numerical information (numbers, graphs, statistics, etc.)	163	2.83	0.85	2.8	
Used numerical information to examine a real-world problem or issue (unemployment, climate change, public health, etc.)	162	2.52	0.98	2.4	
Evaluated what others have concluded from numerical information	163	2.54	0.83	2.5	

^a 1=Very Little, 2=Some, 3=Quite a bit, 4=Very much

^b 1=Never, 2=Sometimes, 3=Often, 4=Very Often

¹ Area of Strength ² Asset to Protect ³ Issue to be Mindful of ⁴ Opportunity for Improvement

Table 2
Learning with Peers
Senior

	N	Mean	Standard Deviation	Peer Mean	Effect Size
Collaborative Learning^{a3}	172	32.0	13.2	32.2	-0.08
Asked another student to help you understand course material	174	2.50	0.86	2.5	
Explained course material to one or more students	175	2.75	0.80	2.8	
Prepared for exams by discussing or working through course material with other students	173	2.44	0.96	2.5	
Worked with other students on course projects or assignments	175	2.69	0.81	2.7	
Discussions with Diverse Others^{a3}	162	42.8	15.2	43.1	-0.08
People from a race or ethnicity other than your own	162	3.19	0.89	3.3	
People from an economic background other than your own	162	3.17	0.81	3.2	
People with religious beliefs other than your own	163	3.17	0.84	3.2	
People with political views other than your own	162	3.02	0.87	3.0	

^a 1=Never, 2=Sometimes, 3=Often, 4=Very Often

¹ Area of Strength ² Asset to Protect ³ Issue to be Mindful of ⁴ Opportunity for Improvement

Table 3
Experiences with Faculty
Senior

	N	Mean	Standard Deviation	Peer Mean	Effect Size
Student-Faculty Interaction^{b1}	170	22.3	13.9	21.5	0.21
Talked about career plans with a faculty member	171	2.46	0.92	2.3	
Worked w/faculty on activities other than coursework (committees, student groups, etc.)	171	1.96	0.98	1.9	
Discussed course topics, ideas, or concepts with a faculty member outside of class	171	2.08	0.84	2.1	
Discussed your academic performance with a faculty member	170	1.98	0.81	2.1	
Effective Teaching Practices^{a1}	165	38.3	13.4	37.3	0.27
Clearly explained course goals and requirements	167	3.13	0.78	3.1	
Taught course sessions in an organized way	168	3.02	0.80	3.0	
Used examples or illustrations to explain difficult points	164	3.12	0.78	3.1	
Provided feedback on a draft or work in progress	165	2.64	0.96	2.5	
Provided prompt and detailed feedback on tests or completed assignments	165	2.65	0.94	2.6	

^a 1=Very Little, 2=Some, 3=Quite a bit, 4=Very much

^b 1=Never, 2=Sometimes, 3=Often, 4=Very Often

¹ Area of Strength ² Asset to Protect ³ Issue to be Mindful of ⁴ Opportunity for Improvement

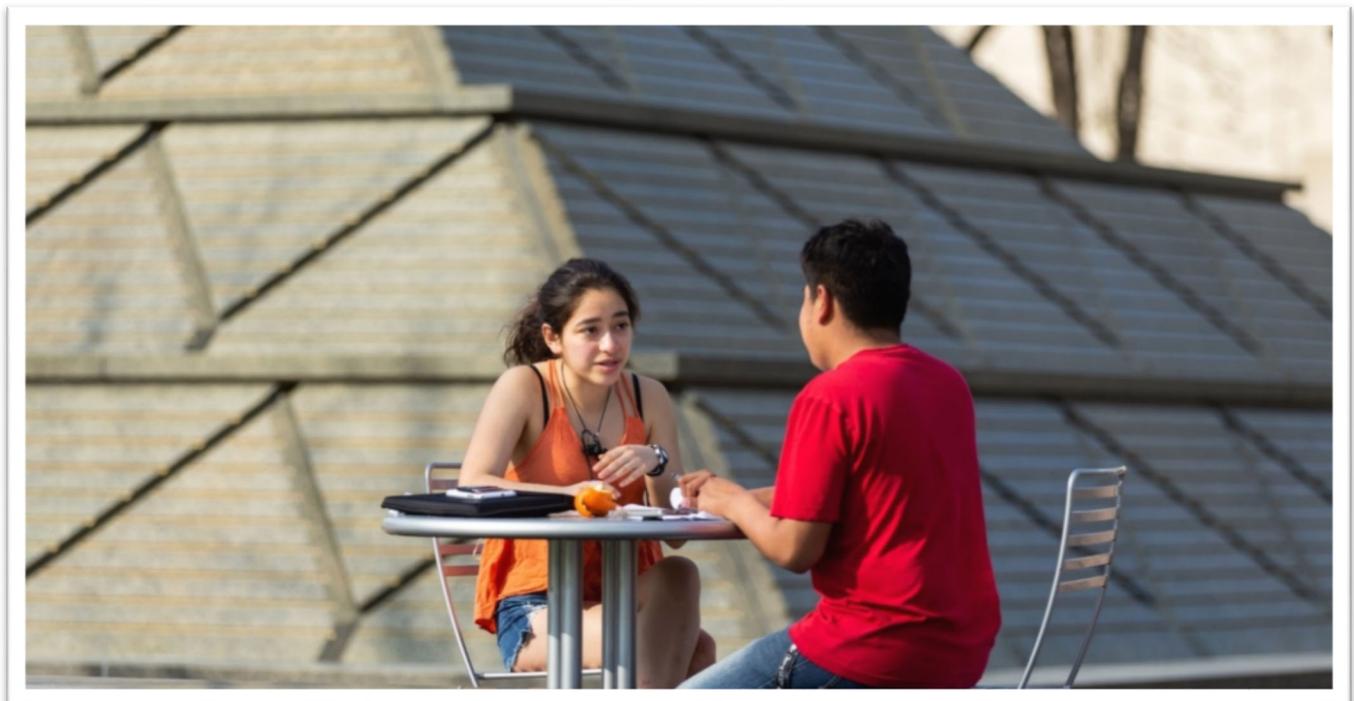
Table 4
Campus Environment
Senior

	N	Mean	Standard Deviation	Peer Mean	Effect Size
Quality of Interactions^{b1}	148	42.0	10.7	38.4	1.06
Students	157	5.41	1.13	5.4	
Academic advisors	159	5.03	1.80	4.7	
Faculty	159	5.31	1.18	5.1	
Student Services Staff (career services, student activities, housing, etc.)	125	4.99	1.57	4.6	
Other administrative staff and offices (registrar, financial aid, etc.)	149	5.15	1.42	4.4	
Supportive Environment^{a4}	157	31.0	13.3	32.7	-0.46
Providing support to help students succeed academically	158	2.94	0.83	2.9	
Using learning support services (tutoring services, writing center, etc.)	160	2.91	0.86	2.8	
Encouraging contact among students from diff. backgrounds (soc., racial/eth., relig., etc)	157	2.68	0.91	2.7	
Providing opportunities to be involved socially	158	2.70	0.87	2.8	
Providing support for your overall well-being (recreation, health care, counseling, etc.)	157	2.52	0.96	2.8	
Helping you manage your non-academic responsibilities (work, family, etc.)	160	2.02	0.93	2.0	
Attending campus activities and events (performing arts, athletic events, etc.)	159	2.32	0.92	2.6	
Attending events that address important social, economic, or political issues	158	2.23	0.93	2.4	

^a 1=Very Little, 2=Some, 3=Quite a bit, 4=Very much

^b Stem= "Indicate the quality of your interactions with the following people at your institution"; 1= "Poor", 7= "Excellent"

¹ Area of Strength ² Asset to Protect ³ Issue to be Mindful of ⁴ Opportunity for Improvement



2018 NSSE Report for School of Science

Table 5
Hours per week spent on activities
Senior

	N	0 Hours per Week	1-5 Hours	6-10 Hours	11-15 Hours	16-20 Hours	21-25 Hours	26-30 Hours	More than 30 hours
<i>Peer Percentages</i>									
Preparing for class	159	0.6	19.5	22.0	22.0	16.4	10.1	5.0	4.4
	1724	0.3	11.9	18.8	19.5	18.5	13.1	6.5	11.4
Participating in co-curricular activities	160	44.4	34.4	9.4	5.0	3.1	1.3	1.3	1.3
	1721	42.3	29.0	14.3	6.0	4.9	1.9	0.6	0.9
Working for pay on-campus	160	65.6	3.1	7.5	7.5	8.8	3.8	2.5	1.3
	1722	70.7	3.3	8.4	5.8	6.7	2.7	0.8	1.5
Working for pay off-campus	159	40.9	3.8	10.7	8.8	8.8	7.5	7.5	11.9
	1726	47.5	4.2	6.6	6.8	11.8	7.8	5.0	10.4
Doing community service or volunteer work	159	45.3	43.4	5.0	3.1	0.6	1.3	0.6	0.6
	1723	47.0	34.3	11.5	3.3	2.0	0.8	0.4	0.7
Relaxing and socializing	158	1.9	28.5	27.2	24.7	9.5	1.9	1.9	4.4
	1721	3.0	26.7	28.6	19.0	10.8	4.6	2.0	5.3
Providing care for dependents	159	73.0	8.8	5.7	1.3	0.0	1.3	0.6	9.4
	1721	72.3	11.0	6.2	2.5	2.1	0.9	0.6	4.4
Commuting to campus	159	6.3	57.2	25.2	5.7	1.3	0.6	1.9	1.9
	1722	11.0	51.6	22.2	9.3	2.8	0.9	0.8	1.4

^a Chi-square test revealed statistically significant difference at $\alpha \leq 0.05$. None were found to be statistically significant.

Table 6
High Impact Practices
Senior

	School of Science Percent "Done"	Peer Percent "Done"	Difference
Service-Learning	72% (116)	47% (810)	25%
Learning Community	31.3% (50)	20% (348)	11.3%
Research with Faculty	44.7% (71)	36% (618)	8.7%
Internship or Field Experience	46% (74)	45% (769)	1%
Study Abroad	17.5% (28)	12% (209)	5.5%
Culminating Senior Experience	62.7% (101)	45% (777)	17.7%

N included in parentheses

Figure 1
Number of High Impact Practices Completed
Senior

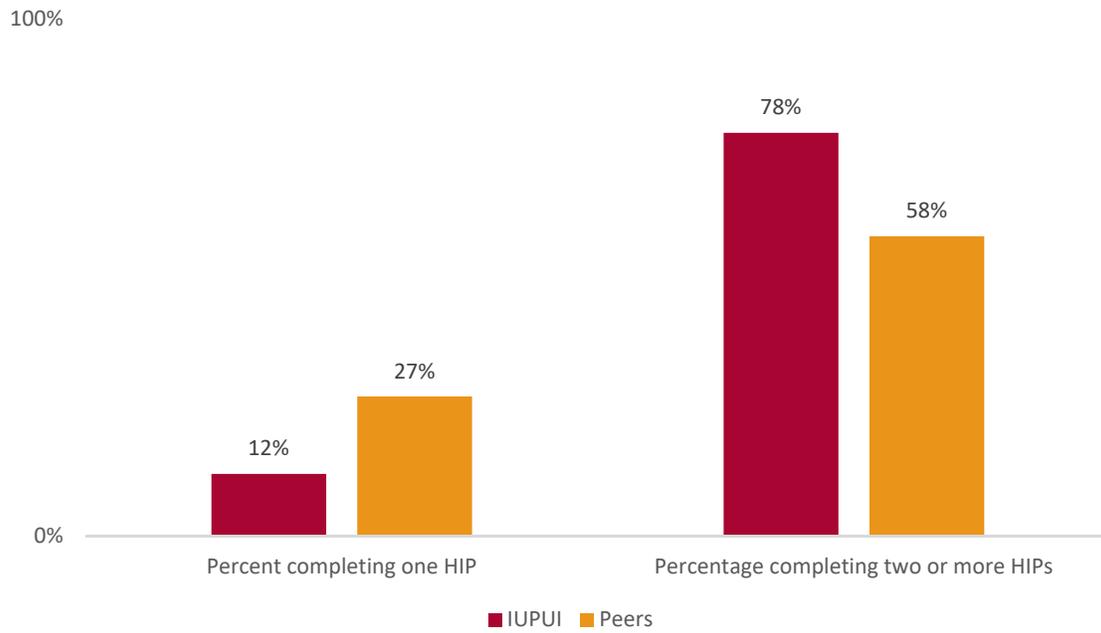


Table 7
Academic Challenge
First Year

	N	Mean	Standard Deviation	Peer Mean	Effect Size
Higher-Order Learning ^{a4}	125	37.3	12.1	39.8	-0.71
Applying facts, theories, or methods to practical problems or new situations	129	3.16	0.73	3.1	
Analyzing an idea, experience, or line of reasoning in depth by examining its parts	128	2.95	0.78	3.0	
Evaluating a point of view, decision, or information source	128	2.61	0.86	2.9	
Forming a new idea or understanding from various pieces of information	126	2.76	0.83	2.9	
Reflective & Integrative Learning ^{b4}	128	33.0	11.9	36.2	-0.92
Combined ideas from different courses when completing assignments	133	2.53	0.74	2.6	
Connected your learning to societal problems or issues	133	2.29	0.90	2.6	
Included diverse perspectives (political, religious, racial/ethnic, gender, etc.) in course discussions or assignments	131	2.18	0.97	2.7	
Examined the strengths and weaknesses of your own views on a topic or issue	132	2.75	0.77	2.8	
Tried to better understand someone else's views by imagining how an issue looks from his or her perspective	129	2.84	0.79	3.0	
Learned something that changed the way you understand an issue or concept	129	2.81	0.78	2.9	
Connected ideas from your courses to your prior experiences and knowledge	129	3.14	0.74	3.1	
Learning Strategies ^{b3}	120	38.8	14.1	39.2	-0.11
Identified key information from reading assignments	121	2.95	0.81	3.1	
Reviewed your notes after class	121	3.03	0.88	3.0	
Summarized what you learned in class or from course materials	121	2.83	0.88	2.8	
Quantitative Reasoning ^{b4}	120	28.6	14.6	29.4	-0.21
Reached conclusions based on your own analysis of numerical information (numbers, graphs, statistics, etc.)	122	2.82	0.81	2.7	
Used numerical information to examine a real-world problem or issue (unemployment, climate change, public health, etc.)	123	2.15	0.97	2.3	
Evaluated what others have concluded from numerical information	121	2.31	0.86	2.4	

^a 1=Very Little, 2=Some, 3=Quite a bit, 4=Very much

^b 1=Never, 2=Sometimes, 3=Often, 4=Very Often

¹ Area of Strength ² Asset to Protect ³ Issue to be Mindful of ⁴ Opportunity for Improvement

Table 8
Learning with Peers
First Year

	N	Mean	Standard Deviation	Peer Mean	Effect Size
Collaborative Learning^{a2}	135	34.7	13.5	34.5	0.05
Asked another student to help you understand course material	137	2.79	0.86	2.7	
Explained course material to one or more students	136	2.92	0.76	2.9	
Prepared for exams by discussing or working through course material with other students	137	2.66	0.96	2.6	
Worked with other students on course projects or assignments	135	2.59	0.78	2.7	
Discussions with Diverse Others^{a4}	122	41.9	14.7	43.0	-0.29
People from a race or ethnicity other than your own	122	3.11	0.96	3.2	
People from an economic background other than your own	122	3.16	0.85	3.2	
People with religious beliefs other than your own	122	3.12	0.90	3.2	
People with political views other than your own	122	2.98	0.86	3.0	

^a 1=Never, 2=Sometimes, 3=Often, 4=Very Often

¹ Area of Strength ² Asset to Protect ³ Issue to be Mindful of ⁴ Opportunity for Improvement

Table 9
Experiences with Faculty
First Year

	N	Mean	Standard Deviation	Peer Mean	Effect Size
Student-Faculty Interaction^{b1}	129	22.0	13.9	20.4	0.42
Talked about career plans with a faculty member	130	2.50	0.90	2.3	
Worked w/faculty on activities other than coursework (committees, student groups, etc.)	128	1.86	0.89	1.7	
Discussed course topics, ideas, or concepts with a faculty member outside of class	129	1.98	0.87	1.9	
Discussed your academic performance with a faculty member	128	2.07	0.86	2.1	
Effective Teaching Practices^{a1}	124	39.6	10.6	38.2	0.41
Clearly explained course goals and requirements	124	3.20	0.65	3.1	
Taught course sessions in an organized way	124	3.16	0.68	3.1	
Used examples or illustrations to explain difficult points	124	3.18	0.68	3.1	
Provided feedback on a draft or work in progress	125	2.67	0.87	2.7	
Provided prompt and detailed feedback on tests or completed assignments	124	2.65	0.84	2.6	

^a 1=Very Little, 2=Some, 3=Quite a bit, 4=Very much

^b 1=Never, 2=Sometimes, 3=Often, 4=Very Often

¹ Area of Strength ² Asset to Protect ³ Issue to be Mindful of ⁴ Opportunity for Improvement

Table 10
Campus Environment
First Year

	N	Mean	Standard Deviation	Peer Mean	Effect Size
Quality of Interactions^{b1}	110	42.4	11.0	40.5	0.56
Students	120	5.27	1.41	5.3	
Academic advisors	119	5.50	1.57	5.2	
Faculty	117	5.31	1.32	5.1	
Student Services Staff (career services, student activities, housing, etc.)	105	5.07	1.46	4.9	
Other administrative staff and offices (registrar, financial aid, etc.)	107	4.99	1.52	4.7	
Supportive Environment^{a2}	118	37.8	13.3	37.4	0.11
Providing support to help students succeed academically	118	3.25	0.69	3.1	
Using learning support services (tutoring services, writing center, etc.)	119	3.34	0.79	3.1	
Encouraging contact among students from diff. backgrounds	119	2.87	0.97	3.0	
Providing opportunities to be involved socially	118	2.99	0.92	3.0	
Providing support for your overall well-being (recreation, health care, counseling, etc.)	119	2.96	0.88	3.0	
Helping you manage your non-academic responsibilities (work, family, etc.)	118	2.31	1.02	2.3	
Attending campus activities and events (performing arts, athletic events, etc.)	118	2.74	0.94	2.8	
Attending events that address important social, economic, or political issues	119	2.58	0.97	2.6	

^a 1=Very Little, 2=Some, 3=Quite a bit, 4=Very much

^b Stem= "Indicate the quality of your interactions with the following people at your institution"; 1= "Poor", 7= "Excellent"

¹ Area of Strength ² Asset to Protect ³ Issue to be Mindful of ⁴ Opportunity for Improvement



2018 NSSE Report for School of Science

Table 11
Hours per week spent on activities
First Year

	N	0 Hours per Week	1-5 Hours	6-10 Hours	11-15 Hours	16-20 Hours	21-25 Hours	26-30 Hours	More than 30 hours
<i>Peer Percentages</i>									
Preparing for class	118	0.0	10.2	22.0	26.3	22.0	10.2	4.2	5.1
	1251	0.2	9.0	17.0	23.2	22.6	13.6	7.2	7.2
Participating in co-curricular activities	119	37.8	40.3	10.9	6.7	2.5	0.8	0.0	0.8
	1246	33.7	35.5	15.2	7.9	3.5	2.2	1.0	1.0
Working for pay on-campus ^a	119	77.3	5.9	11.8	1.7	2.5	0.8	0.0	0.0
	1246	82.3	2.1	4.6	4.9	3.5	1.5	0.5	0.6
Working for pay off-campus ^a	119	59.7	5.0	11.8	10.1	5.9	5.0	2.5	0.0
	1247	71.0	3.8	5.1	5.2	6.3	4.5	1.8	2.2
Doing community service or volunteer work	119	52.9	39.5	3.4	3.4	0.8	0.0	0.0	0.0
	1246	53.9	32.8	7.1	3.0	1.7	0.8	0.2	0.4
Relaxing and socializing	119	1.7	13.4	31.9	27.7	10.1	2.5	4.2	8.4
	1247	1.2	21.5	27.1	22.2	12.1	6.5	3.0	6.4
Providing care for dependents	117	81.2	11.1	4.3	2.6	0.9	0.0	0.0	0.0
	1248	79.4	10.9	3.0	2.9	1.6	1.3	0.4	0.5
Commuting to campus	118	24.6	45.8	23.7	4.2	0.8	0.8	0.0	0.0
	1244	33.8	35.6	17.6	7.2	2.8	1.6	0.3	1.1

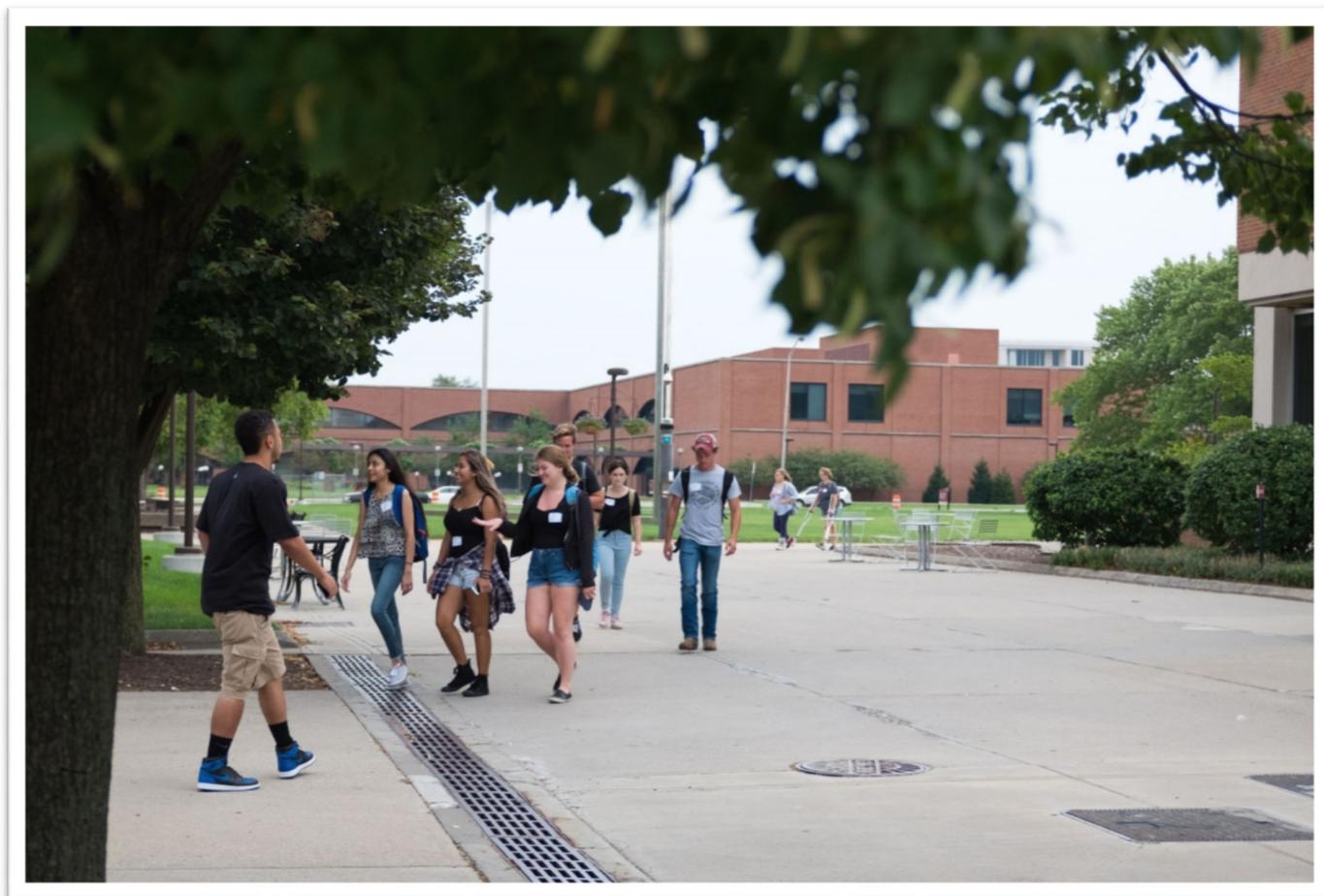
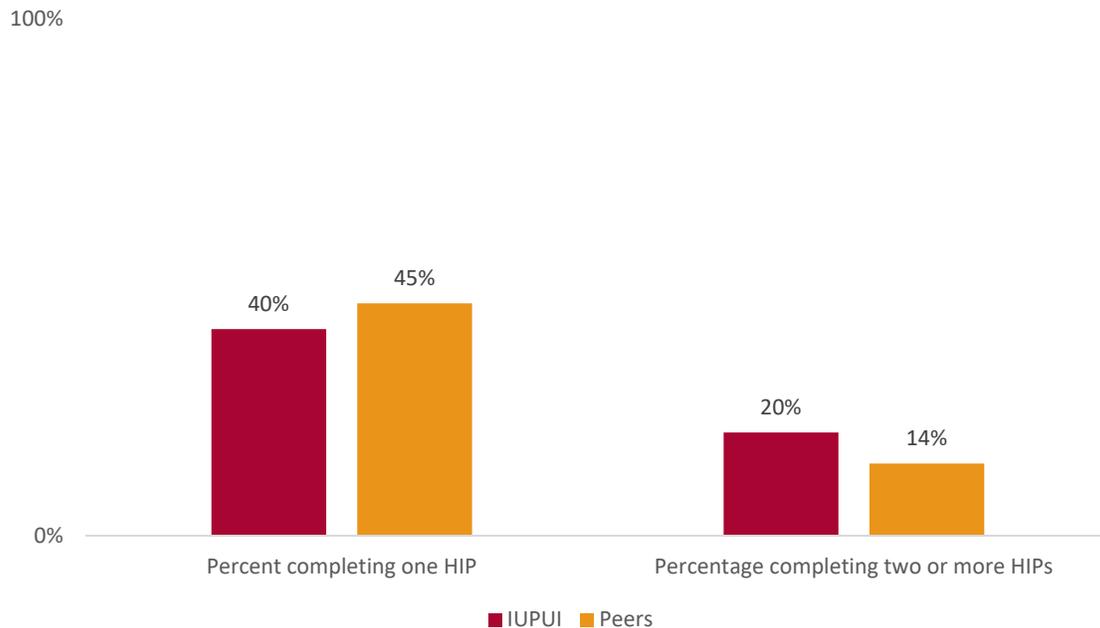
^a Chi-square test revealed statistically significant difference at $\alpha \leq 0.05$.

Table 12
High Impact Practices
First Year

	School of Science Percent "Done"	Peer Percent "Done"	Difference
Service-Learning	47.5% (57)	49% (610)	- 1.5%
Learning Community	28.3% (34)	19% (236)	9.3%
Research with Faculty	7.4% (9)	6% (79)	1.4%
Internship or Field Experience	11.6% (14)	8% (104)	3.6%
Study Abroad	2.5% (3)	3% (36)	- 0.5%
Culminating Senior Experience	0.8% (1)	3% (35)	- 2.2%

N included in parentheses

Figure 2
Number of High Impact Practices Completed
First Year



2018 NSSE Report for School of Science

*Prepared by
Steven Graunke and Jasmine Beecham
(Institutional Research and Decision Support)*

