Two Years of Purdue’s Undergraduate Core Curriculum

The core curriculum is a set of eight foundational learning outcomes and three embedded learning outcomes required of all undergraduate students. The core curriculum was instituted with the Fall 2013 cohort and is governed by the University Curriculum Committee. The foundational level of the core requires that students complete one course in 7 areas (written communication, oral communication, information literacy, humanities, behavioral and social sciences, quantitative reasoning, and science, technology & society), and two courses in science. This month’s report focuses on the course-taking behavior of 5,753 students from the 2013 cohort and 6,408 students from the 2014 cohort still enrolled through spring 2015.

Distribution of foundational courses within the core

The number of unique courses approved for the core as of June 2015 is 355. It is also important to note that a single course can count toward more than one outcome. Seventeen courses count for two outcomes and seven math courses were consolidated into 3 new courses in 2015. As shown in Figure 1, almost half of the 355 courses (166) are from Humanities, while only 3 courses meet oral communication. The College of Liberal Arts offers the most core courses with 199. The College of Science is second with 83. The College of Science, however, has had core enrollments of 23,584 students from the Fall 2014 cohort and the College of Liberal Arts has had 18,959. For the Fall 2013 cohort, there were 19,777 student enrollments in Liberal Arts courses and 30,802 enrollments in Science courses.

Completion of the foundational core

As seen in Table 1, over 90% of the Fall 2013 cohort have fulfilled the requirements for Behavioral & Social Sciences, Information Literacy, Quantitative Reasoning, and Written Communication. In contrast, at least 1,100 students still need to fulfill each of the Humanities, Oral Communication, Science, and Science, Technology and Society outcomes. For the Fall 2014 cohort, approximately 90% of them have fulfilled the Information Literacy, Quantitative Reasoning, and Written Communication requirements, but the remaining five foundational outcomes still need more than 2,000 students to complete each of them. With new cohorts of students matriculating each fall, the potential exists that bottlenecks will arise for some outcomes. Given the current priority for course registration, this might limit options for freshmen.

Table 2 shows that the vast majority of Fall 2013 students, 90%, have completed at least 6 of the outcomes, but only 26% of them have met all of the requirements for the foundational core after 4 semesters.

Table 3. Fall 2013 Cohort Distribution of Enrollment, by Type of Credit, by Outcome

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Total Enrollment</th>
<th>Purdue</th>
<th>AP Credit</th>
<th>Transfer Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral &amp; Social Sciences</td>
<td>12,698</td>
<td>89%</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>Humanities</td>
<td>10,900</td>
<td>68%</td>
<td>22%</td>
<td>11%</td>
</tr>
<tr>
<td>Information Literacy</td>
<td>12,107</td>
<td>85%</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Oral Communication</td>
<td>4,655</td>
<td>91%</td>
<td>0%</td>
<td>9%</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>17,031</td>
<td>61%</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>Science</td>
<td>18,939</td>
<td>82%</td>
<td>11%</td>
<td>7%</td>
</tr>
<tr>
<td>Science, Technology and Society</td>
<td>5,741</td>
<td>97%</td>
<td>0%</td>
<td>3%</td>
</tr>
<tr>
<td>Written Communication</td>
<td>6,568</td>
<td>70%</td>
<td>9%</td>
<td>21%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>88,839</strong></td>
<td><strong>82%</strong></td>
<td><strong>10%</strong></td>
<td><strong>8%</strong></td>
</tr>
</tbody>
</table>

Students may satisfy their core requirements with courses taken at Purdue, as AP credit, or as transfer credit. Overall, students from the Fall 2013 cohort enrolled in 88,839 courses that satisfied the core. On average, 82% of the courses were taken at Purdue, 10% came as AP credit, and the remaining 8% is from Transfer Credit. For each foundational outcome, the courses most commonly taken at Purdue are ECON 251 for Behavioral & Social Sciences, SPAN 201 for Humanities, ENGL 106 for Information Literacy and Written Communication, COM 114 for Oral Communication, MA 261 for Quantitative Reasoning, CHM 115 for Science, and TECH 120 for Science, Technology & Society. The largest foundational courses met using AP credit were MA 165 with 1,402 students, HIST 151 & 152 with 598 students, and ENGL 106 with 575 students. In terms of Transfer Credit, the commonly used courses were ENGL 101 with 402 students, COM 114 with 350 students, and ENGL 103 with 338 students.
Distribution of the foundational core courses by course enrollment

The average number of students from the Fall 2013 cohort utilizing a particular foundational core course is 37 students, with a range from zero to 4,011 students. Figure 2 presents the distribution of courses, with the columns representing an enrollment of zero students taking a specific core course, 1 to 15 students, 16 to 30, etc. Thirty-four of the courses had no enrollments from the Fall 2013 cohort, while an additional 100 courses had less than 15 students. Almost half of the courses had fewer than 30 students taking them; most of these courses are in the Humanities. Each foundational outcome had at least one course with more than 500 students enrolled, with courses from Quantitative Reasoning and Science having the largest takers.

Fulfillment of the core by course size is highly related to the distribution of the courses. As indicated in Figure 3, the largest 38 core courses, all with enrollment over 500 students, account for 68% of the total enrollment in the core, and the 113 courses with more than 100 students account for 91% of the total enrollment. The 211 courses with 50 or fewer students only enroll 4% of the students in the core.

What is a rough estimate of the fewest courses required for students to meet the requirements of each element of the core?

The total enrollment for each course (Purdue, AP, and Transfer) by learning outcome was summed one course at a time starting with highest enrolled course to provide a rough estimate of what the minimum number of courses would be to provide at least 8,000 seats (or 15,000 for Science which requires two courses). The cushion of 8,000 and 15,000 student course enrollments reflects that some curricula require multiple courses from a particular outcome (e.g., MA 161 and MA 162). Given current plans of study, at least 112 courses are needed to allow students to meet their degree requirements and satisfy the core curriculum. At least 45 courses are needed in Behavioral & Social Sciences, Information Literacy, Oral Communication, Quantitative Reasoning, Science, and Written Communication. In contrast, the remaining outcomes, Humanities and Science, Technology & Society, need 67 courses to provide enough capacity.

Table 4. Minimum number of PWL Courses to Allow Students to Satisfy the Core

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Number Of PWL Courses</th>
<th>Number of PWL Courses to Reach 8,000 (15,000) seats</th>
<th>Average Enrollment per Course</th>
<th>Min Course Enrl</th>
<th>Max Course Enrl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral &amp; Social Sciences</td>
<td>44</td>
<td>5</td>
<td>1,636</td>
<td>772</td>
<td>2,470</td>
</tr>
<tr>
<td>Humanities</td>
<td>166</td>
<td>22</td>
<td>366</td>
<td>117</td>
<td>1,379</td>
</tr>
<tr>
<td>Information Literacy</td>
<td>19</td>
<td>7</td>
<td>1,444</td>
<td>453</td>
<td>4,833</td>
</tr>
<tr>
<td>Oral Communication</td>
<td>3</td>
<td>3</td>
<td>1,529</td>
<td>38</td>
<td>4,349</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>22</td>
<td>6</td>
<td>1,681</td>
<td>1,263</td>
<td>2,424</td>
</tr>
<tr>
<td>Science</td>
<td>59</td>
<td>15</td>
<td>1,002</td>
<td>325</td>
<td>2,901</td>
</tr>
<tr>
<td>Science, Technology &amp; Society</td>
<td>49</td>
<td>45</td>
<td>124</td>
<td>1</td>
<td>615</td>
</tr>
<tr>
<td>Written Communication</td>
<td>10</td>
<td>9</td>
<td>593</td>
<td>5</td>
<td>4,833</td>
</tr>
</tbody>
</table>

| Total Unique Courses¹                | 355                    |                                      |                               |                 |                 |

¹ Seventeen courses count for two outcomes in the overall core. Of 112 courses required to satisfy the core, 4 courses can double count for the core.

Conclusion

A university-wide undergraduate core curriculum has been in place for two years. It was developed through careful consideration of the University Senate and implemented by the Undergraduate Curriculum Council. In many cases, colleges continue to have their own cores that require specific courses from the University’s Foundational Core. This can create tension for students who are uncertain about their choice of major, because, while they may have satisfied the core in their first degree, if they change majors, they may have to take additional courses to satisfy program requirements, ultimately leading to a delayed time to degree.

¹ Purdue’s Undergraduate Outcomes-based Core Curriculum