

## How and When Students Meet the Core Curriculum Foundational Learning Outcomes

Beginning with the cohort of students entering Purdue University in fall 2013, the Undergraduate Core Curriculum (UCC)<sup>1</sup> requires all undergraduate students to meet requirements for eight Foundational Learning Outcomes (FLO) and three Embedded Learning Outcomes (ELO). 30,498 bachelor's degree-seeking students, from all cohorts<sup>2</sup> between fall 2013 and spring 2017, are expected to complete the UCC requirements. How and when these students meet the FLO requirements are highlighted within this briefing, with emphasis on the fall 2013 cohort, the first cohort to enroll up to eight fall and spring terms.

### How Many Courses Contain Core Requirements?

Entering the fall 2017 term, 480 unique courses fulfill requirements for at least one of the FLOs, but each approved course is not offered every term. Table 1 shows the count of courses offered each term based on the FLO it fulfills. Patterns in course offerings between fall and spring terms show minor differences in the count of courses available to students, although the courses offered differ. Fewer courses are offered during summer terms.

**Table 1: Mean Count of Unique UCC Courses Offered by FLO<sup>3</sup>**

Terms	BSS	HUM	IL	OC	QR	SCI	STS	WC
Fall Terms	42	146	20	3	20	45	40	8
Spring Terms	42	141	16	3	18	45	39	7
Summer Terms	28	43	8	2	11	22	18	2

Codes for UCC Foundational Outcomes:

- BSS: Human Cultures: Behavioral/Social Sciences
- HUM: Human Cultures: Humanities
- IL: Information Literacy
- OC: Oral Communication
- QR: Qualitative Reasoning
- SCI: Science
- STS: Science, Technology, & Society
- WC: Written Communication

### Do Enrollment Capacities Impede Completing any FLOs?

The counts of course offerings for some FLOs in Table 1 might imply a lack of course diversity for some students to complete a specific FLO requirement; however, the counts of courses may matter less than the capacity to register students in UCC courses. Table 2 shows the registration capacity of UCC courses, by FLO, and rate of capacity used. In general, there remain additional spaces for students to meet core requirements. Moreover, the rate of students using a course registration to meet an FLO differs widely between FLOs. For students yet to meet an FLO, we do not know whether the available space fits an individual student's preferences and/or availability in a desired core course or satisfies degree requirements.

Also shown in Table 2, 23.4% of all registrations in UCC approved courses are used by students to complete FLO requirements, meaning over three-fourths of UCC course registrations are used by students who previously completed the FLOs associated with the course. Every student who registers for and completes a UCC course with a passing grade earns credit towards the UCC requirements, but many students, by the time they register for a specific UCC course, do not need the course to meet a FLO. For example, over 400 students completed SPAN40100 between fall 2013 and spring 2017, a course which students can use to meet their HUM outcome; however, every student enrolled in SPAN40100 met their HUM outcome requirement prior to enrolling in this course. This circumstance is true for 49 of the UCC core courses offered at least once between fall 2013 and summer 2017.

**Table 2: Registration Capacities within UCC Courses, Fall 2013 to Summer 2017<sup>4</sup>**

FLO	Registration Max Capacity	Rate of Max Capacity Used	Rate of Registrations Used to meet an FLO
BSS	131,253	72.0%	18.1%
HUM	104,884	65.1%	14.7%
IL	56,540	81.2%	43.5%
OC	23,397	87.7%	69.8%
QR	76,594	82.5%	22.4%
SCI	91,533	77.9%	34.9%
STS	44,886	62.9%	61.5%
WC	23,089	79.5%	50.5%
<b>Total</b>	<b>436,141</b>	<b>69.9%</b>	<b>23.4%</b>

### How Many Credits are Students Earning in UCC Courses?

Persistent students easily meet the requirement to complete 30 total credits in UCC core courses. Table 3 summarizes the UCC course credits students have earned (via PWL course, transfer, or AP credit), by their cohort and whether they have completed all eight, or less than eight, FLO requirements. Very rarely—only three cases thus far—all eight FLOs were met by students before earning 30 or more credits in UCC courses. Typically, a student's major requires completing additional UCC courses in at least one FLO, which pushes the student beyond the 30 credit threshold. For example, a student following the Chemical Engineering plan of study<sup>5</sup> will earn 36 credits in UCC approved courses for four FLOs (IL, OC, QR, and SCI) within their first three terms at Purdue. These students will complete an estimated 48 credits in UCC courses overall, but spread out completion of the remaining four FLOs between their third and eighth term.

**Table 3: Summary of UCC Credits Earned by Cohort and Completion of the UCC Requirements**

Cohort	All Eight FLO Requirements Completed			Zero to Seven FLO Requirements Completed		
	Count of Students	Mean Sum of UCC Credits Earned	Range of UCC Credits Earned	Count of Students	Mean Sum of UCC Credits Earned	Range of UCC Credits Earned
Fa 2013	4,938	65	32.0-128.0	1,910	43	1.0-114.0
Sp 2014	148	62	34.0-105.0	134	44	6.0-109.0
Fa 2014	4,049	62	34.0-115.0	2,924	46	3.0-103.0
Sp 2015	136	59	38.0-91.0	184	39	2.0-81.0
Fa 2015	2,602	58	29.0-111.0	4,992	45	1.0-94.0
Sp 2016	60	57	36.0-102.0	240	40	3.0-89.0
Fa 2016	770	54	28.0-98.0	7,185	34	2.0-86.0
Sp 2017	14	56	41.0-73.0	212	28	3.0-66.0
<b>Total</b>	<b>12,717</b>	<b>62</b>	<b>28.0-128.0</b>	<b>17,781</b>	<b>40</b>	<b>1.0-114.0</b>

### When do Students Complete FLOs?

A large proportion of students complete their BSS, HUM, IL, or WC outcome requirements by the end of their first term at Purdue. Across the four cohorts (F13, S14, F14, S15) in this study who have had the chance to enroll in four or more terms at Purdue, 70% of all FLOs met thus far were completed by students before the end of their second term at Purdue, and 83% of the FLOs met by the end of their fourth term. Hence, the pace with which students complete core requirements likely peaks between the second and fourth terms, and slows rapidly as students move on to non-UCC courses.

The FLO a student takes the longest before completing likely depends on the priority of courses listed in their program of study. Using students' primary college at admission, the outcome most frequently delayed the longest to complete, on average, is<sup>6</sup>:

- OC for Agriculture and Science majors,
- QR for Education and Vet Med majors,
- SCI for Exploratory, Liberal Arts, Management, and PPI majors, and
- STS for Engineering, Health and Human Science, and Pharmacy majors.

Based on the entering college of students from the fall 2013 cohort, the rates of students yet to complete each FLO are shown in Table 4. For the subset of students in the fall 2013 cohort who enrolled in all eight fall and spring terms possible, only 7.5% of all expected FLOs were not yet met.

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**Table 4: Rate of Students from the fall 2013 Cohort not Completing each FLO, by Students' Primary College at Admission<sup>7</sup>**

Primary College at Admission	Count of Students Completing <8 FLOs	BSS	HUM	IL	OC	QR	SCI	STS	WC
Ag	171	4.7%	8.8%	3.7%	<b>13.2%</b>	10.1%	5.4%	6.8%	7.8%
Ed	39	4.2%	1.7%	2.5%	15.0%	<b>20.0%</b>	10.0%	16.7%	3.3%
Engr	428	7.0%	10.2%	1.7%	5.3%	1.3%	3.9%	<b>13.7%</b>	5.7%
Expl	218	5.2%	7.3%	2.1%	9.9%	7.6%	<b>16.7%</b>	14.0%	8.4%
HHS	224	2.2%	5.2%	3.7%	10.1%	10.4%	<b>12.5%</b>	<b>12.5%</b>	8.8%
LA	256	3.2%	3.7%	5.8%	12.9%	14.3%	<b>28.1%</b>	13.9%	6.7%
Mgmt	77	0.9%	3.1%	1.3%	6.5%	1.6%	<b>11.7%</b>	6.1%	4.0%
Pharm	54	3.2%	13.9%	2.5%	22.2%	3.8%	3.2%	<b>24.7%</b>	7.0%
PPI	206	7.2%	13.7%	2.9%	11.5%	9.3%	<b>26.1%</b>	6.5%	9.8%
Sci	230	5.7%	5.7%	4.6%	<b>14.8%</b>	3.8%	9.9%	12.7%	6.4%
Vet Med	8	19.0%	19.0%	23.8%	28.6%	<b>38.1%</b>	14.3%	14.3%	19.0%

**Table 5: Fall 2013 Cohort Students' Progress towards Completing the UCC Requirements, by Students' Primary College at Admission<sup>8</sup>**

Primary College at Admission	Students with All Eight FLOs Completed		Students with Zero to Seven FLOs Completed, Mean Count of FLOs Completed								
	Count of Students	Mean Term Count	Count of Students	After 1 Term	After 2 Term	After 3 Term	After 4 Term	After 5 Term	After 6 Term	After 7 Term	After 8 Term
Ag	414	4.0	171	3.8	5.2	6.1	6.1	6.0	6.1	6.4	6.7
Ed	71	4.9	39	3.0	4.2	5.7	--	7.0	6.5	6.6	6.7
Engr	1,241	5.1	428	3.0	4.9	5.5	6.0	5.9	6.4	6.6	6.7
Expl	492	5.1	218	3.4	4.3	4.8	5.6	6.2	6.4	6.4	6.7
HHS	558	4.9	224	3.9	5.1	4.8	5.8	6.5	6.0	6.2	6.5
LA	402	5.3	256	3.6	4.4	5.0	5.8	6.6	6.1	6.3	6.6
Mgmt	349	4.4	77	4.5	5.0	5.7	6.1	6.1	6.5	6.3	6.8
Pharm	91	5.0	54	4.5	5.3	5.8	6.0	7.0	5.5	6.0	7.0
PPI	350	5.4	206	4.0	4.4	4.8	6.2	5.5	5.8	6.4	6.6
Sci	611	5.4	230	2.5	4.1	4.9	5.7	5.9	6.5	6.5	6.6
Vet Med	11	3.2	8	2.0	--	4.0	--	--	--	5.0	6.4

On average, students from the fall 2013 cohort who completed the UCC core requirements needed 5 terms to finish it, but as more students complete FLOs, this average time to completion increases. Shown in the left-hand columns of Table 5, the count of terms required to complete all of FLOs varies slightly by students' entering college. The right-hand columns of Table 5 show ongoing progress for students who have not yet met the requirements for all eight FLOs.

## How Do Transfer Credits and Advanced Placement Credits Affect Progress Towards Completing FLOs?

Students may meet FLO requirements by taking a course at Purdue, transferring in course credit from another institution, or Purdue accepting AP credit. Table 6 shows the distribution of credit type used for each FLO.

**Table 6: Rate of Credit Earned for FLOs, by Credit Type<sup>9</sup>**

FLO Met	Credit Type		
	PWL Course Credit	Transfer Credit	AP Credit
BSS	82.2%	13.2%	4.6%
HUM	52.9%	33.5%	11.4%
IL	83.8%	9.6%	6.6%
OC	82.0%	18.0%	0.0%
QR	75.6%	15.5%	8.9%
SCI	83.2%	9.1%	7.6%
STS	95.2%	1.7%	3.1%
WC	69.3%	23.4%	7.3%

Students use PWL courses to earn the majority (76.1%) of their FLO credit. The remaining earned FLO credits are divided among transfer (16.7%) and advanced placement (7.2%). Nine UCC courses have had over 1,000 students use transfer or AP credit to earn credit, and the top five UCC courses for which students have the highest count using transfer or advanced placement credit are: MA15300(QR), ENGL10100(WC), HIST15200(HUM), HIST15100(HUM), and ENGL10300(IL & WC)<sup>10</sup>.

## Which UCC Courses are Most Commonly Used to Complete FLOs?

The courses most frequently used by undergraduate students to meet the FLO are often completed within students' first year at Purdue. The top three UCC courses, since fall 2013, for each outcome are shown in table 7.

**Table 7: UCC Courses Most Commonly Used to Complete FLO<sup>11</sup>**

BSS	HUM	IL	OC	QR	SCI	STS	WC
ECON25100	HIST15200	ENGL10600	COM11400	MA26100	CHM11500	EAPS10000	ENGL10600
PSY12000	SPAN20100	STAT30100	COM21700	MA16200	PHYS17200	STAT11300	EDCI20500
SOC10000	MUS25000	ENGR13100	EDPS31500	MA16010	BIOL11000	TECH12000	COM20400

Interestingly, while COM11400 is the most popular UCC course taken overall since fall 2013, with over 20,300 registrations, ENGL10600 by far contributes to the largest count of outcomes met since over 19,700

students earn credit for two outcomes (IL and WC) with this course. Referring back to Table 1, the importance of COM11400 and ENGL10600 cannot be overstated since these courses fulfill requirements for the OC and WC FLOs, with few course options being offered in any term.

## Summary

Students course registration history were used for this report, which does not account for any individualized plans of study or exceptions to the UCC granted to individual students. Hence, the rate of UCC progress is possibly higher than reported. These results are nonetheless useful for decision-makers considering questions such as:

- Which students are progressing, or not progressing, towards completion of all FLOs? Which policies, practices, or plans of study encourage or inhibit students' progress towards completion of any FLOs?
- How does the UCC affect time to degree? Academic performance? Retention?
- How do alternatives (chiefly transfer and AP credit) affect completion of the core?

Further data collection will be needed to explain any "why?" inquiries following these questions. We recommend colleges or schools similarly review students' progress towards completing the requirements of embedded learning outcomes specific to particular degrees or programs of study, and encourage you to contact the OIRAE if you need assistance.

<sup>7</sup>For more information about the UCC, see: [Office of the Provost Core Curriculum](http://www.purdue.edu/provost/students/s-initiatives/curriculum/coreCurriculum.html) (<http://www.purdue.edu/provost/students/s-initiatives/curriculum/coreCurriculum.html>)

<sup>8</sup>For this project, students with a summer start are grouped with students from the subsequent fall cohort. (For example, the fall 2016 cohort includes students with an admissions profile term of either summer 2016 or fall 2016.)

<sup>9</sup>Taken from dashboard - "Count of UCC Courses Offered at PWL, by FLO, within Academic Periods." An excel spreadsheet of all approved and denied courses is available at: [Office of the Provost Curriculum Courses](http://www.purdue.edu/provost/students/s-initiatives/curriculum/courses.html) (<http://www.purdue.edu/provost/students/s-initiatives/curriculum/courses.html>)

<sup>10</sup>Taken from dashboard - "PWL UCC Course Registration Capacities and Usage, by FLO." For some courses, the maximum enrollment is distorted by a non-exceedable total in some sections. For example, the registration capacity is 9,999 for the fall 2016 section of POL10100 with CRN=72668. Some counts are duplicated across FLOs due to courses meeting more than one FLO, but the FLO "Total" is an unduplicated count. To see registration and capacity information for all UCC courses, by academic period, refer to the dashboard named "PWL UCC Course Registration Capacities and Usage, by Course."

<sup>11</sup>See: [Chemical Engineering web site](https://engineering.purdue.edu/ChE/academics/undergraduate/plans-of-study) (<https://engineering.purdue.edu/ChE/academics/undergraduate/plans-of-study>)

<sup>6,7</sup>Taken from dashboard - "When Each FLO is Met."

<sup>8</sup>Taken from dashboard - "Terms Required to Complete UCC Requirements."

<sup>9</sup>Taken from dashboard - "UCC FLOs Completed, by Type of Credit Earned."

<sup>10</sup>Taken from dashboard - "Counts/Rates of Credit Type Earned, by UCC Course."

<sup>11</sup>Taken from dashboard - "Frequently used UCC Courses."