

From STEM to STEAM: Building Meaningful Collaborations Between the Sciences and Humanities for Student Success



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Project Background:

At the University of West Georgia (UWG), students earning grades of D, F or W in ENGL 1101/1102 courses are nearly 30%, which impedes a significant number of STEM majors from advancing academically. The UWG STEM Initiative (University of West Georgia Institutional STEM Excellence - UWise) piloted an innovative solution wherein incoming STEM majors completed ENGL 1101 sections that centered around the sciences culturally and politically in a humanities framework. These sections targeted the development of analytical skills necessary for burgeoning scientists while fostering interdisciplinary college writing practices. The data from this pilot study evidences better content engagement and academic progression than matched-control groups. This CCG proposal seeks to replicate this successful paradigm to positively impact, over three years, all entering STEM majors.

Project Synopsis:

The goal of the proposal is to replicate STEM-based ENGL 1101 and 1102 sections to a target group of incoming freshmen who have expressed interest in majoring in STEM disciplines, with the eventual goal of institutionalization.

Across Summer and Fall 2014, the English faculty participated in two workshops and developed a curriculum for the STEM to STEAM sections.

Offering of STEM to STEAM Sections:

10 ENGL 1101 sections are being offered in Fall 2014.
10 ENGL 1102 sections are being offered in Spring 2014.

Evaluation Plans:

Pre – and post-tests
Focus groups

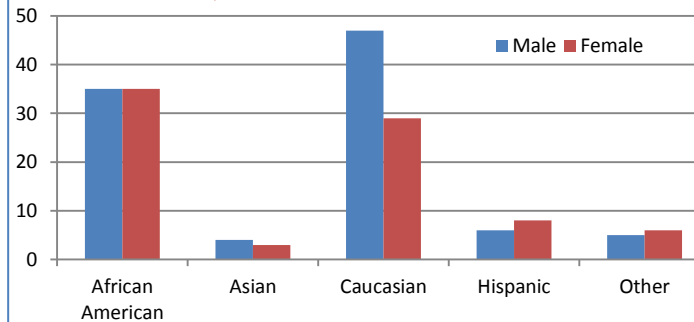
Project Impact Upon Completion:

Replication of this proven innovative approach has the potential to increase student success in the freshmen year and their college experiences as a whole. Further, graduating an increased number of better-prepared STEM professionals positively impacts the economy both at the state and national levels.

ENGL 1101, STEM to STEAM Sections: Student data by Section

Section	# of Students	Avg. High School GPA	Avg. Freshman Index	Avg. SAT M	Avg. SAT CR	Avg. ACT M	Avg. ACT E
81643	22	3.17	2585	520	486	22	19
81649	23	3.26	2579	477	461	20	20
81655	20	3.16	2592	533	524	21	22
81667	22	3.02	2460	486	467	20	18
81671	15	3.26	2602	484	494	21	21
81616	21	3.18	2562	489	476	21	20
81623	17	3.29	2546	448	459	17	18
81615	14	3.38	2671	503	477	20	22
81605	12	3.19	2587	476	520	22	21
81646	13	3.37	2749	547	523	22	20
TOTALS	179	3.23	2593	496	489	21	20

ENGL 1101, STEM to STEAM Sections: Student Profile



Key Findings:

Since the CCG funded STEM to STEAM initiative has just begun, in this section we discuss the findings from the pilot program conducted under the auspices of UWise.

XIDS 2100, Arts and Ideas, is a STEAM themed English course taught during the 4 week summer bridge program. Students in Summer 2012 (Cohort II), 2013 (Cohort III) and 2014 (Cohort IV) completed this course and were subsequently placed in STEAM themed fall ENGL 1101 courses with STEM focused writing assignments. The final grades from these cohorts (II through IV) were compared with matched controls. (FYI—Since the summer program for Cohort I, conducted in summer 2011, neither had XIDS 2100 nor STEM to STEAM focused ENGL 1101 sections, the data from this cohort will not be discussed.)

Comparison of DFW rates in XIDS 2100 (English Writing) in Summer, ENGL 1101 in Fall, and ENGL 1102 in Spring Semesters with Matched Control Group.

	UWise Cohort II (2012)	Matched Control for Cohort II	UWise Cohort III (2013)	Matched Control for Cohort III	UWise Cohort IV (2014)	Matched Control for Cohort IV
XIDS 2100 Summer Semester	6.9%	--	2.8%	--	3%	--
ENGL 1101 Fall Semester	3.7%	20%	12.5%	31.25%	NA	N/A
ENGL 1102 Spring Semester	7.7%	5.3%	15.4%	27.8%	NA	N/A

**Matched Controls: For each UWise student in a given Cohort, a matched non-bridge student was selected, in a blind fashion, by matching SAT scores, freshman index, and high school GPA. Only STEM majors were considered for the matched non-bridge group. The data were provided by the UWG Office of Institutional Effectiveness and Assessment.*

Conclusion:

1. In Fall 2014, we recruited 179 students in 10 sections of ENGL 1101 where the reading and writing assignments are STEM focused.
2. In Spring 2015, we earmarked 10 sections of ENGL 1102 that will be populated with the students who are currently enrolled in STEM based ENGL 1101; these sections may have a few new UWG STEM admits.

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